

FDA Expected to Kill Request for Residue in Milk

Application for Tolerance On Methoxychlor Seen as Being Extremely Unlikely

By JOHN CIPPERLY
Croplife Washington Correspondent

WASHINGTON — The Food and Drug Administration was expected late last week to announce its denial of a residual tolerance for Methoxychlor that would permit its application as a space spray in dairy barns. As Croplife went to press, every indication pointed to a negative decision by FDA on a request that it set a permitted residual tolerance level in fluid milk.

With a zero tolerance for methoxychlor residue in milk, USDA will be unable to issue approval of a label bearing any allowance for residues, under the terms of Federal law as outlined in the Miller amendment to the Federal Food, Drug and Cosmetic Act.

Under the Miller amendment, USDA first acts to certify potential usefulness of a product and it is then up to FDA to act on applications for establishment of a tolerance level. If and when FDA were to announce an approved residual tolerance level, USDA would then be required to act affirmatively and give approval to a label which the manufacturer puts on his product setting forth the residual tolerance granted by FDA.

Under the circumstances which will prevail when FDA denies approval of a residual tolerance level for this product, USDA will be obliged to act negatively and fail to take the next step of approving a label for use of the product in such a way as to affect the purity of milk.

It was pointed out that although no tolerance for residues in milk will be allowed, thus reducing

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Weed Society Takes Sharp Look At \$5 Billion Annual Problem

MEMPHIS — A problem which causes a \$5 billion dollar annual loss to the national economy—and the equivalent of more than a \$100 loss to every American family—was attacked with vigor at the meeting of the Weed Society of America and the Southern Weed Conference at the Peabody Hotel here Jan. 12-15.

More than 700 persons from the United States and seven foreign countries gathered for the meeting to discuss various aspects of the weed control problem. It was the second annual meeting for the Weed Society and the eleventh annual for the host, the Southern Weed Conference. Foreign countries represented included England, Sweden, Canada, Japan, Nova Scotia, Brazil and New Zealand. Theme of the general session Jan.

13 was fundamental research in weed control. Presiding was A. S. Crafts, society vice president, University of California, Davis, and the group was welcomed by Mayor Edmund Orgill. In his address, W. B. Ennis, Jr., Crops Research Branch, Agricultural Research Service, U.S. Department of Agriculture, Beltsville, Md., society president, outlined the challenges of modern weed control.

Dr. Ennis traced the development of weed control, pointing out that the first use of chemicals to control weeds came in the period 1895-1909. The chief limiting factor to early widespread use of chemicals was the lack of herbicides that possessed high potency and adequate selective-killing properties. Discovery of the selective herbicidal activity of the phenoxy-

acetic acids in 1944 was the major breakthrough and has had a far-reaching effect in weed control.

Many examples of progress in weed control were cited by Dr. Ennis. Control of weeds in flax with TCA and MCPA in Minnesota experiments during 1950-56 gave an average gain of \$14.88 per acre. Use of CIPC as a delayed pre-emergence herbicide to control barnyard grass in rice in Arkansas experiments during 1955-57 produced an average gain of \$73.55 per acre. And recent results of chemical control studies in Mississippi have shown that the use of chemicals to control weeds in cotton resulted in average gains ranging between \$23 and \$25 per acre, as compared to the conventional weed control method, Dr. Ennis said.

The society president stated that progress in weed control is directly related to research efforts by public and private firms. State agricultural experiment stations spent \$623,000 in 1950 on weed control research, as compared to \$1,646,000 in 1957, and the ARS of USDA spent \$181,283, as compared to the \$660,660 set for fiscal 1958.

Dr. Ennis said basic research in weed control must be strengthened. "We have a distressingly poor understanding of the mechanisms of

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35 Million Acres Sprayed for Control of Weeds in 1957

MEMPHIS — The acreage sprayed for weed control during 1957 exceeded the total acreage sprayed and dusted for both insect and plant disease control during the same year.

Figures made public during the second annual meeting of the Weed Society of America here Jan. 12-15 showed the total acreage of farmland sprayed for the control of weeds in 1957 was more than 35 million acres.

Cut Forecast in First Quarter Carloadings

WASHINGTON—A 3.2% reduction in fertilizer carloadings during the first quarter of this year has been estimated by the regional shippers advisory boards in reports to the Association of American Railroads. Loadings are expected to total 107,347 in the quarter, compared with 110,840 in a similar period in 1957.

This total includes about 3 million acres of miscellaneous crops, such as peanuts, soybeans and a variety of vegetables and other horticultural crops.

An estimated 12 million acres of corn were sprayed, with the average cost of the chemical running 70¢ per acre. Most of the acreage was treated with 2,4-D. A new chemical, CDAA, was used on a limited acreage, mostly in seed production fields, and another new herbicide, simazin, also has shown promise as a pre-emergence herbicide for weed control in corn.

Two chemicals, diuron and CIPC, were the main ones used on the more than 350,000 acres of cotton sprayed for weed control in 1957. One of the most recent developments in cotton weed control has been the use of dalapon as a pre-planting and spot treatment herbicide for the control of Johnson grass and nut grass.

Farmers sprayed over 18 million acres of small grains—rice, wheat, oats, barley and flax—in 1957, using primarily 2,4-D and MCPA. The cost of chemicals averaged 66¢ per acre, and the custom applicator rate for weed control in these crops averaged about \$1.85 per acre, including the cost of the chemicals.

Over 2.5 million acres of pastures and rangelands were sprayed for weed control. The cost of the chemicals per acre averaged \$1.10, and custom applicators across the country charged \$2.60 per acre on the average including the cost of chemicals.

About 270,000 miles of the 390,000 miles of railroad tracks in the United States are treated annually with chemicals at an average cost of \$60 to \$65 per mile. More than 60,000 miles of highway roadsides were treated one or more times last year with herbicides.

175 Fertilizer Manufacturers at Sohio Symposium

By HENRY S. FRENCH
Croplife Staff

LIMA, OHIO—A symposium sponsored by Sohio Chemical Co. here Jan. 16 was attended by about 175 manufacturers of liquid and dry fertilizers.

The event was the occasion for announcement by Sohio that, as the result of two years of research in the field and its own laboratories, the firm has prepared two file-size, illustrated handbooks for use by dry and liquid fertilizer manufacturers. Sohio technical representatives explained the data presented in the new handbooks and the theories and research work on which they were based.

Among those on hand to help answer questions in the symposium, in addition to the Sohio people, were Dr. K. G. Clark from the U.S. Department of Agriculture, Beltsville, Md.; A. V. Slack of the TVA at Muscle Shoals, and Dr. Vincent Sauchelli, chemical technologist with the National Plant Food Institute, Washington, D.C.

One of Sohio's new handbooks covers in considerable detail the use of "Sohiogen" nitrogen solutions for dry fertilizer manufacture. This manual covers a wide variety of problems and

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F. M. Bennett

JOINS SALES FORCE—F. M. Bennett has joined the agricultural chemicals department of Commercial Solvents Corp. as a sales representative, it has been announced by Clyde T. Marshall, department manager. Mr. Bennett will make his headquarters at CSC's district office in Cincinnati, Ohio. He will service manufacturers in the state of Kentucky and portions of Ohio, concentrating on sales of the company's solid ammonium nitrate, nitrogen solutions, and other nitrogen products. Mr. Bennett is a native of Baltimore, Md., and a graduate of William & Mary College. Before joining CSC, he represented Virginia-Carolina Chemical Corp.

Kansas Aerial Applicators Form New Association

LIBERAL, KANSAS—The Kansas Aerial Applicators' Assn. has been organized here, composed of men engaged in aerial spraying operations. Bonnie Thompson of Liberal was elected president of the association at a meeting here attended by 22 of the state's 84 aerial spray operators. B. L. Hinman of Plains was elected vice president. Mrs. Thompson will serve as secretary-treasurer.

Directors are Bill Rucker, Burdett; Ralph Eyer, Syracuse; Gilbert Legleiter, La Crosse; Larry Thompson, Wichita; Dale Simpson, Liberal; Richard Batman, Meade; Earl Wittaker, Sublette, and Frank Shaw, Johnson.

One purpose in organizing the group is to press for a change in a 1955 Kansas law which has given the agricultural aircraft operators in Western Kansas a bonding problem.

Mr. Hinman explained that the aerial sprayers cannot obtain bonds. He said the 1955 law places unlimited liability on a company bonding the sprayers. Now the companies refuse to handle bonds because of the scope of the law.

Further complicating matters is the fact that the Kansas law prohibits the spray plane operators to do any work, unless bonded. The new organization plans to press for a change and bring about a liability limit.

Fertilizer Company Changes Ownership

FRESNO, CAL.—The Paul Harrison Fertilizer Co., 210 Equitable Bldg., Fresno, formerly a partnership owned by Paul H. Harrison, Oscar Hammarsten and C. L. Nicholson, has changed ownership. Under a reorganization, the firm is now owned by the Sand Co., Paul Harrison Products and the Roy Nicholson Co. A related firm, the Paul Harrison Co., processor of feed and almond products, is jointly owned by the Paul Harrison Co., and the Akul Co., as part of the reorganization program.

Value of Early Season Control Of Cotton Insects Stressed At Mississippi Conference

STATE COLLEGE, MISS.—The latest developments in controlling agricultural insects were presented to around 300 entomologists, insecticide dealers, formulators and agricultural workers here during the 4th annual Mississippi Insect Control Conference Jan. 9-10.

Speakers included leading research entomologists of the U.S. Department of Agriculture, the state experiment stations and the insecticide industry.

While information referred to insects attacking forage and seed crops, forest insects and many others, it centered generally on cotton insect control.

Speaking on the present and future trends in cotton insect control, K. P. Ewing, consulting entomologist, Washington, D.C., emphasized early season control.

"In actual field tests in Louisiana during 1957 early season applications of insecticides combined with late season controls held infestation rates down to a maximum of 14%," he said. "Where late season controls alone were applied, infestation averaged around 60%."

"We must get the boll weevil early. It takes less than half the poison to kill overwintered boll weevils than it does later in the season. Another great help in reducing boll weevil numbers is to prevent them from going into hibernation. This can be helped in some areas through early stalk destruction immediately following harvest and by use of defoliant or desiccants."

Dr. Charles Petty of the LSU medical school, New Orleans, La., stated that organic phosphate insecticides are decidedly similar to poisonous gases developed by the Germans during World War II.

"Despite the dangerous nature of these materials, few cases of phosphate poisoning were noted in Louisiana in 1956 and 1957," Dr. Petty stated. "With hundreds of thousands of pounds of these materials being applied only around 15 cases of poisoning showed up, and all but one of these were non-fatal."

Dr. Petty cited "common sense" as the major preventive of more poisoning cases.

"We must recognize the poisons for what they are and treat them accordingly," he advised. "Major preventives are daily changes of clothing, thorough washing, destruction of empty containers and refusing to be-

come complacent in using the materials."

Cotton insect control recommendations listed by A. G. Bennett, Mississippi, extension entomologist, contained only one change from the 1957 recommendations: "Malathion at the rate of 1/2 lb. should be applied at three-day intervals instead of five-day intervals. If five-day intervals are used, rate of application should be increased to 1 lb."

Highlights of cotton insect control research during 1957 were presented by USDA research entomologists and entomologists of the Mississippi Agricultural Experiment Station. Moderator of this panel was Dr. M. E. Merkl, USDA entomologist at Stoneville, and president-elect of the Mississippi Entomological Assn.

Dr. Clay Lyle, dean and director of the division of agriculture at Mississippi State College, pointed out that without entomology the value of agriculture to Mississippi would be greatly reduced. He further stated that agriculture is still the "backbone" of the economy of the state.

Dr. William Giles, superintendent of the Delta Branch Experiment Station at Stoneville, pointed out that insects are in competition with man and his pocketbook as well as with plants.

"Trying to grow cotton without insect control is dangerous," he said. "It can be done, but yields would likely vary from no cotton per acre to around 200 lb. Insect control is a vital part of the complete cotton program and must be used along with other recommended practices like fertilizer, good seed and land selection for most profitable yields."

Among the highlights were reports on progress made in controlling the rapidly expanding spread of imported fire ants. H. B. Green, an entomologist at the Agricultural Experiment Station, told of good results obtained with dieldrin and heptachlor applied with both ground and air equipment.

The federal-state program for the eradication of this pest is now underway on some 46,000 acres in seven states.

Speaking on the control of livestock parasites, R. A. Hoffman, USDA entomologist at Stoneville, emphasized the increasing importance of livestock to the economy of Mississippi.

"With the great strides made in



H. L. Vincent

NEW ASSIGNMENT—H. L. Vincent has been transferred by Union Carbide Chemicals Co., division of Union Carbide Corp. from the Eastern Gulf Coast states to Southern Texas. Mr. Vincent represents the company in the sales of Crag agricultural chemicals. The new territory extends from the Rio Grande Valley north into the Brazos River bottom. He will concentrate on developing the market for Carbide's new Seven experimental insecticide for control of pink bollworm and other cotton insects, dividing his time between sales and development, the company said. In addition to calling on formulators, he will conduct field tests in cooperation with entomologists at Texas A&M College and with USDA cotton specialists at Brownsville.

poultry production, and with the state now classified as the number one state in the nation east of the Mississippi River in cattle numbers, control of parasites is highly important," he said.

New systemic-type insecticides for the control of external parasites show great promise, he added.

At the annual business meeting of the Mississippi Entomological Assn., held during the conference, Dr. M. E. Merkl of Stoneville, was named president, Reid Faulkner of Greenville, vice president, and A. G. Bennett of Mississippi State College, secretary and treasurer.

Directors named include Joe Patterson of Jackson, N. L. Douglass of Grenada, Cliff Porterfield of Clarksdale, Dick Griffith of Greenville and Larry Wade of Rolling Fork.

Geigy Forms Four New Sales Districts

ARDSLEY, N.Y.—Geigy Agricultural Chemicals, division of Geigy Chemical Corp., Ardsley, N.Y., has announced the formation of four sales districts to facilitate nationwide distribution of its products.

Coordination and supervision of over-all district sales operations have been assigned to L. G. Gemmell, assistant to the division president, Dr. G. R. Ferguson. J. J. Hood has been appointed assistant sales manager in charge of technical services.

The eastern sales district, covering the territory from Maine to Florida, has been assigned to S. C. LeVasseur with offices at Ardsley, N.Y.

L. C. Ohle, with offices at Kansas City, has been named district sales manager for the south central district, which includes Colorado, Nebraska, Missouri, Tennessee and states lying south of these.

The north central district, comprising the northern section of the mid-west farm states, will be in charge of Haskell Tison at Geneva, Ill.

C. L. Turzan of Fresno, Cal., has been named district sales manager for all states west of the Rockies.



HEAD MISSISSIPPI GROUP—New officers and directors of the Mississippi Entomological Assn. elected during the annual Mississippi Insect Control Conference are from left, front row, Dr. M. E. Merkl of Stoneville, president; Reid Faulkner of Greenville, vice president; and A. G. Bennett of Mississippi State College, secretary and treasurer. Back row are directors, Joe Patterson of Jackson, N. L. Douglass of Grenada, Cliff Porterfield of Clarksdale, Dick Griffith of Greenville and L. T. Wade, Jr., of Rolling Fork.

USDA TEAM GETS RESULTS . . .

Low Toxicity Claimed for New Insecticide Based on Extract From Chrysanthemums

WASHINGTON—New insecticides said to be less toxic to warm-blooded animals than any now in general use have been discovered by U.S. Department of Agriculture chemists at Beltsville, Md.

Results of limited toxicity tests with the new compounds and preliminary trials to determine their effectiveness as insecticides have justified application for a public service patent on these materials, USDA says. Efficient methods of manufacture must still be worked out before the new materials can become available to the public, it was pointed out.

The new insecticides are derivatives of chrysanthemumic acid, a synthetic material similar to an acid found in flowers of the chrysanthemum family. This acid makes up a part of the molecules of pyrethrum and allethrin.

Acute toxicity tests on warm-blooded animals revealed that the new compounds are only one-eighth as toxic as pyrethrum and one-third as toxic as allethrin. Both pyrethrum and allethrin have long been considered the "safest" insecticides.

In the preliminary laboratory tests on insects, two of the new compounds were shown to be equal or better than either pyrethrum or allethrin at high levels of kill, although somewhat slower in "knockdown." Both were less effective as insect killers than DDT and other hydrocarbons, all of which may leave toxic residues. However, the new materials gave good results against larvae of the common malaria mosquito, the codling moth, the salt marsh caterpillar, and the southern army worm. They were also very effective against the body louse.

Further tests are being made to study the effectiveness of these new compounds against other insects. The results will indicate the extent of their use in insect-control work where it is necessary to avoid residues.

The new compounds were developed by USDA chemists W. F. Barthel

and B. H. Alexander at Beltsville in studies begun by the Department more than 20 years ago to find insecticides of low toxicity to mammals and high toxicity to insects. One product of this research is allethrin, now in widespread use as a household insecticide.

In their work to find compounds of low mammalian toxicity, Mr. Barthel and Mr. Alexander synthesized approximately 200 esters of chrysanthemumic acid. Five of these have shown promise, and two rated higher than all the rest in the preliminary tests.

The two best esters of chrysanthemumic acid were made with 6 bromo-piperonyl alcohol and 6 chloro-

piperonyl alcohol. It is reported that these esters, while considerably more expensive than DDT and other chlorinated hydrocarbons, can be made at lower cost than allethrin. Further, the new compounds are representative of a group of basic materials from which even more effective compounds of low mammalian toxicity may be developed through continued research.

Joseph D. Dalton Joins AAC Company

NEW YORK—Dr. Joseph D. Dalton has joined the research department of the American Agricultural Chemical Co. He will participate in the firm's fertilizer research program.

Dr. Dalton is a native of Tennessee. He obtained his bachelor's degree from the University of Tennessee, his master's degree from Kansas State University, and his doctorate in soil chemistry from the University of Massachusetts.

57 Bu. Yield Wins

Indiana Soybean Contest

LAFAYETTE, IND.—John H. Moorehead, a Vanderburgh County farmer, has won the 1957 Indiana five-acre soybean yield contest with a yield of 57 bu. an acre. The 1956 winning yield was 61.8 bu. Keller E. Beeson, Purdue University agronomist and secretary-treasurer of Indiana Crop Improvement Assn., reported 88 farmers participated in the contest, sponsored jointly by the association and the Purdue extension service.

Mr. Beeson said that practically all of the 88 contestants planted about four pecks of soybeans an acre in 38 or 40-inch rows. Fertilizer application in the row was not heavy. However, fertility levels resulting from past applications and good farming practices were high and are generally considered by outstanding soybean growers to make an important contribution to high yields.

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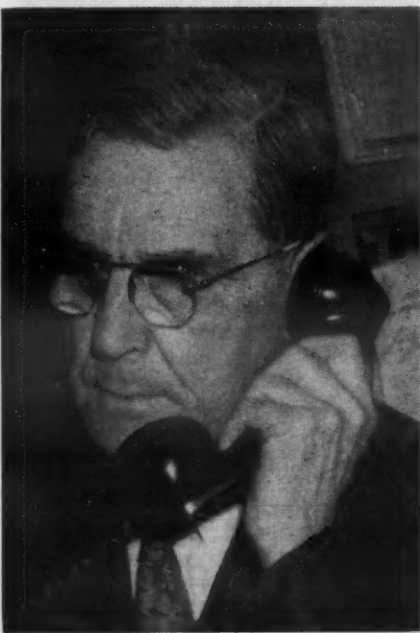
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John L. Day

RETIRES—John L. Day retired Jan. 1 from Farmers Cotton Oil Co., Wilson, N.C., after 43 years with the company. At the time of his retirement he was secretary-treasurer of the firm, a position he had held for many years. He is succeeded by E. R. Bridgers. Mr. Day joined Farmers Cotton Oil Co. in 1914 after having clerked in stores as a young man and also doing a stint on a tug boat plying between New Bern, N.C., and Philadelphia. Having spent so many years with the cotton oil firm, Mr. Day plans to do a bit of traveling, first to Florida and later to other points in the U.S.

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INSECT AND PLANT DISEASE NOTES

Corn Borers Infest 88% of Iowa Crop, but Only 7% of Farmers do Anything About it

AMES, IOWA—Iowa farmers used more insecticides in 1957 than in previous years, according to a report by Dr. Harold Gunderson, extension entomologist at Iowa State College. The materials were employed for controlling insect pests on both crops and livestock, he says.

Of significance, however, Dr. Gunderson pointed out that applications of insecticides for control of the European corn borer were about the same as during the two previous years despite the fact that 1957 was the second worst borer year on record. Last year, farmers treated some 800,000 acres for the two broods of corn borer.

On the basis of surveys of the first brood—ending in Iowa during the first 10 days of July—about 62% of Iowa corn was infested with 250 borers per 100 plants. The fall survey showed that 88% of Iowa's corn was infested. The population averaged 397 borers per 100 plants.

Dr. Gunderson said that if more farmers had treated for the first brood of borers, such heavy infestations in late summer would not have been reported. He explained that the first brood can be treated more effectively because timing is more certain, application is easier and it gives a better kill.

Total loss from corn borer damage in Iowa is estimated at \$70 million to \$100 million, Dr. Gunderson said. The 7.4% of Iowa farmers who treated for corn borers probably realized a return of about 6 million bushels of corn, or about 4 million bushels "clear profit," he said.

The use of soil insecticides against soil insects again showed an increase in 1957. Increases have occurred every year since 1951 when soil insecticides were first recommended in Iowa. Two million acres were protected against soil insects last year. This included the carryover effect of 400,000 acres broadcast-treated in 1956.

Corn borers do about the same amount of damage as all the soil insects, and the treatments require similar investments. However, Dr. Gunderson pointed out, 20% of Iowa's corn acres were treated with soil insecticides while only 7% of the corn acres were treated for corn borers.

About 110,000, or 68% of Iowa farmers, used insecticides to control flies on livestock. About 25,000 utilized self-treating devices such as back rubbers or treadle sprayers.

The Iowa extension entomologist said farmers have found that self-treating devices save labor, are more economical and "probably give better control." This is because an animal treats itself as soon as the pests become bothersome.

Experiments at Iowa, as well as at two other midwest universities, show that controlling flies and mosquitoes on dairy cows prevents a 10% drop in production caused by the pests.

Beef cattle gain $\frac{1}{2}$ lb. more per day when they are treated for insect pests. Dr. Gunderson pointed out the treatment did not increase the rate of gain, but prevented the normal decrease in the gaining rate.

About 22% of the sows in Iowa were treated for hog mange and lice before farrowing. This prevented infestation in the young pigs and made faster gains possible. On the basis of packing house estimates, Dr. Gunderson said this increased the value of each pig by \$1. Farmers who treated

their sows apparently saved nearly \$4½ million on their market pigs.

Looking to the 1958 season, Dr. Gunderson indicated that the prevalence of insects in the state will depend largely upon the weather during spring and early summer months. However, in view of last year's large number of corn borers in Iowa, normal weather this year is expected to bring another "severe" infestation, he said. Dry weather should produce a "heavy" crop of the pests. An unusually wet spring could reduce the corn borer to a "moderate" problem.

Dr. Gunderson said that grasshoppers would present only a "moderate" problem at the worst, even in case of a dry spring. In normal or wet years, grasshoppers are attacked and killed more readily by a fungus disease.

Predictions for the potato leafhopper range from "severe" with a dry spring and summer, to "light" in the case of a wet season. Conversely, flies and mosquitoes will thrive if spring and summer weather is either normal or unusually wet.

Dr. Gunderson expects the problem of insects in stored grain to be normal. But it could be "heavy" if wet weather next summer and fall results in harvesting of high-moisture grain. He explained that these predictions were based on insect populations at the time the studies were made. They indicate the greatest infestation possible under the stated weather conditions.

Grasshoppers and Corn Borers Few in Wisconsin

MADISON, WIS.—Wisconsin's 1957 adult grasshopper survey revealed heaviest populations in counties located in the central part of the state. Later, an egg survey showed a high concentration of eggs laid in the same area. The low population of grasshoppers found in the other portions

of the state may have been due to poor spring survival.

Grasshopper populations and crop losses were relatively low. Losses were estimated to be less than one million dollars in 1957. This figure is similar to the loss suffered in 1956 from grasshoppers.

Adverse weather in the spring of 1957 prevented grasshoppers from becoming as numerous as anticipated. Small grasshoppers did not have favorable weather to feed and develop normally. Adverse weather also accounts for the grasshopper population not being uniform throughout Wisconsin.

After Wisconsin's recorded all-time low of 23 borers per 100 plants in 1956, the number of European corn borers entering the winter of 1957 increased to 36. The greatest part of this increase was in the southwest and west central districts, the southwest increasing from 56 borers per 100 plants to 91, and the west central from 25 to 58.

Because of the increased corn borer infestation, Wisconsin's \$180,633,000 corn crop suffered a \$1,950,836 loss. This loss was arrived at by multiplying the combined value of corn and ensilage by 1.08%. The figure of 1.08% is obtained by multiplying the borers per 100 plants times 3%, the loss due to a single borer, (36 borers per 100 plants \times 3%).

Many instances of ear shanks being infested with corn borers were noted. This resulted in hollow shanks that were brittle and some ears dropped to the ground, making harvest difficult. This condition may have been due to borers finding the shanks more desirable in the retarded growth of the 1957 corn crop.

Examination of many blown-over corn stalks showed that this condition was not always caused by the feeding of corn borers. In several instances the downed stalks were the result of a high plant population in which the individual stalks were weak and spindly. Other blown-over plants were infected with stalk rot and other diseases.

HORTICULTURIST HONORED

CORVALLIS, ORE.—Henry Hartman, professor of horticulture at Oregon State College since 1919, has been named winner of the national award in horticulture given each year by the American Pomological Society.

Construction Firm Building Fertilizer Plant in Texas

LITTLEFIELD, TEXAS—A new fertilizer plant which will manufacture superphosphate and other materials is now being constructed on a 10-acre tract just southeast of Littlefield.

The plant, which will cost about \$200,000, will be known as the Caprock Fertilizer Co. and is owned by the Longhorn Construction Co. of Sulphur Springs, Texas. Partners in the firm are W. S. and C. H. Tyler and Arnold E. Neumann, all of Sulphur Springs.

The plant will turn out an expected 30,000 tons of fertilizer annually, which will be marketed throughout eastern New Mexico and the plains section of West Texas.

Manager of the new firm will be Pete Gowan. Both he and sales manager C. M. "Pete" Schultz have held key positions with a large fertilizer company in East Texas. With the exception of these two officials, the remaining workers on a 30-employee staff will be selected from applicants in this section.

The Longhorn Construction Co. operates throughout the Southwest in building fertilizer equipment and buildings. In addition, the owners have an interest in several fertilizer plants in Texas.

Advisory Committee Recommends Study Of Insect Resistance

ALBANY, CAL.—A proposal to step up studies on the control of insects resistant to insecticides was given a top priority spot in recommendations of a U.S. Department of Agriculture Deciduous Fruit and Tree Nuts Research and Marketing Advisory Committee which held its annual meeting here recently.

For a long range solution to this problem, basic studies should be started to determine the causes of insect resistance and the precise action of various types of insecticidal chemicals, the committee said. Members of the committee are leaders in the deciduous fruit and tree-nut industries.

Richard A. Goodling Joins Stauffer Chemical

NEW YORK—Richard A. Goodling has joined Stauffer Chemical Co.'s northeast agricultural region as a technical field representative covering the south and central areas of Virginia, it is announced by Dan J. Keating, vice president of the agricultural chemicals division.

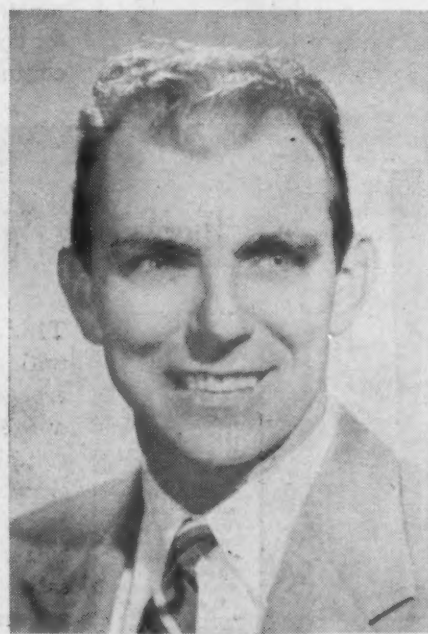
Mr. Goodling will make his headquarters in North Garden, Va., and will report directly to the New York City office. A graduate of Pennsylvania State University in 1950 with a B.S. in Horticulture, he has been active for over twenty years in apple raising and orchard management in the Pennsylvania and Virginia areas.

RESIDUES

(Continued from page 1)

methoxychlor's use as a barn spray, the material may still be used as a dusting powder on dairy animals for livestock pest control.

USDA officials have expressed no opinion over the potential inventory problems of the chemical industry in this situation, but they expressed belief that producers of methoxychlor probably will take immediate steps to notify formulators and others of the FDA rejection of a residual tolerance allowance.



Frank Illnick



John C. Long, Sr.

CHIPMAN APPOINTMENTS—Chipman Chemical Co., Inc., Bound Brook, N.J., has announced the appointments of Frank Illnick as agricultural sales and field representative, and John C. Long, Sr., as manufacturer's agent for its agricultural chemical line. Mr. Illnick will operate in the Northeastern states, and Mr. Long in the state of Pennsylvania.

Mr. Illnick was formerly with Baugh & Sons Co., Philadelphia, as sales and plant manager of its Jamesburg, N.J. installation. He is a graduate of Colorado A&M College.

Mr. Long was formerly associated with the old Tobacco By-Products & Chemical Corp. That company later became a division of Virginia-Carolina Chemical Corp., and in 1956 was purchased by Diamond Alkali Co. He continued as district sales manager for Diamond until late in 1956 when he became inactive because of ill health. His retirement from Diamond was announced Nov. 19, 1957. (Cropplife, Nov. 25, page 19.)



WORLD REPORT

By **GEORGE E. SWARBRECK**
CROPLIFE Canadian and Overseas Editor

Education

The education of the user is of paramount importance to the fertilizer and pesticide trades. The work of individual firms in the U.S. has earned high praise for its imagination and perseverance; the result is a growing acceptance of the value of the products of the agricultural chemical industry.

This awareness of the value of educational measures is spreading to other countries and, in some instances, advantage is being taken of American know-how. An example is provided by India. Roy L. Donahue, an agronomist on the Kansas State College-International Cooperation Administration-India team, is helping to start a soil conservation and irrigation school. He almost had to fight to get approval for five days of the seven-day school to be devoted to field training, he states.

The use of fertilizers is playing an important part in the program to expand Indian agricultural production. Mr. Donahue was instrumental in improving the age-old "desi" plow, a typical primitive Indian implement. The plow has two bamboo tubes and is used as a seed and fertilizer distributor at one and the same time. The seed is put in one tube and fertilizer in the other. However, both seed and fertilizer come out of the same opening and with such placement no more than 20 lb. of nitrogen can be used without burning the seedlings.

Participating recently in the first fertilizer school in Madhya Pradesh, Mr. Donahue explained that ideal placement of fertilizer was 2 in. to one side and 2 in. below seed level. While no one knew of an implement designed to place fertilizer in this position, the Indian workers, assisted by Mr. Donahue, achieved the desired results with only a minor adjustment to the desi plow.

British Exhibition

A crop protection and pest control exhibition is to be held in London May 12-15.

Organized by World Crops, an agricultural journal, the exhibition will be concerned mainly with weed and pest control in agriculture and horticulture, though domestic and industrial pest control will be featured as well. Many thousands of invitation leaflets have been mailed to agriculturalists and others in overseas countries, and it is hoped that the event will provide a stimulus to export business for the British agricultural chemical and equipment business. Many leading companies have already booked space in the exhibition.

Norwegian Progress

In the operating year just ended, Norsk Hydro, prominent Norwegian hydro-electric undertaking—reputedly one of the largest in the world—spent the equivalent of \$9.8 million on extensions and improvements. Much of this money was poured into its main manufacturing activity, the production of nitrogenous fertilizers. Annual production is estimated at 1.5 million tons.

Since the end of World War II, technical improvements have hiked the output of pure nitrogen to 230,000 tons a year. Although the chief product is still nitrate of lime, the production range has been growing wider in recent years. Included are ammonium nitrate limestone, nitrate of soda, horticultural ferti-

lizer, huminal, urea and a line of complete fertilizers.

Norsk Hydro's urea, with a nitrogen content of 46%, is finding a ready demand in home and overseas markets. Buyers include countries in Europe, North and South America, Africa and Asia.

The production of compound fertilizers is also increasing rapidly and effectively—two years ago the annual output was 70,000 tons; now it is 200,000 tons.

Apple Spray Developed

The New South Wales, Australia, Department of Agriculture reports that it has developed a spray compound to prevent the destruction of apple crops by the disease "black-spot."

This disease has cost apple growers all over the world millions of dollars in the last 50 years and the Australian apple industry counts the cost of its own damage at \$4.5 million a year.

The department says that tests have proved the spray, a mercuric compound applied to trees after harvest, to be effective after one spraying.

Joint Action

In 1957 tests at Altona, on light soil, showed that the sugar beet maggot can be effectively reduced by adding insecticides to the fertilizer applied at seeding, according to a report made by W. R. Allen, entomology division, Canada Department of Agriculture, at the annual conference of Manitoba agronomists in Winnipeg recently.

Coating the seed with insecticides may also provide inexpensive plant protection. These methods increased yield by two to three tons an acre, he added.

Austrian Production

Linz Nitrogen Works, Austria's largest fertilizer manufacturer, has entered the urea business. Preliminary productive capacity is scheduled to total 14,000 tons in 1958.

A new plant, with a capacity of 20,000 tons a year, is nearing completion. Purpose of the plant, officials say, is to mix individual components using a process which will insure the proper proportions in the smallest size-granule.

Phosphate in Jordan, Israel

Completion of an agreement between Jordan Phosphate Mines Co. and Yugoslavia, under which a Yugoslavian company will be allowed to search for phosphate and establish mines, has been announced.

The Yugoslavs will have the right to buy from the Jordan company, at cut prices, three quarters of their phosphate requirements for the next 10 years.

Phosphate production in Israel is expanding. News has now been revealed of the discovery of a 16 sq. mi. high grade phosphate field containing an estimated billion tons of the mineral. Site of the find is near Ein Yahav in the Negev.

The phosphate in the new field is reported to have a content of 26%, compared with 23.5% in the Oron field which has been successfully exploited by the Israel Mining Corp. for several years.

Various processes for the enrichment of the phosphate are now in the testing stage, and it is hoped to find an economical method for bringing

the concentration up to 30-31%, the international standard. If this can be done, it will be possible to sell the phosphate on the world market without further processing.

Other potential phosphate deposits are now being examined with a view to development.

New Ceylon Factory

The Cooperative Wholesale Establishment, a Ceylon firm, is going to build a factory for the processing and manufacture of fertilizers.

The company proposes to call world-wide tenders for the supply of raw materials. Offers have already been received from Russia and Japan.

Wild Oats Control

Wild oats are still the No. 1 weed problem in Western Canada, and so far no chemical has been found which will control this weed on land put to cereal grains.

Wild oats and other weed problems were discussed recently at the Western Canadian Weed Control Conference in Victoria, B.C.

Commenting on the conference, H. J. Mather, assistant director, Line Elevators Farm Service, noted that delayed seeding is still the best means of controlling wild oats. And with up to 70 bu. wild oats seeds an acre in the soil of some fields, Mr. Mather stated, it is obvious that a successful control program will require several years to complete.

Japanese Exports

Though the Japanese fertilizer manufacturers have been facing tougher competition in export markets, with greater competition from western countries as a result of freight rate declines, they still run a healthy, prosperous industry. Their latest coup was to sign a contract with India for the sale of 50,000 tons of ammonium sulfate at a price of \$48 ton f.o.b. Delivery will be made between January and April of this year.

According to government statistics, Japanese exports of fertilizers in the first half of last year totaled 681,624 tons against 490,568 tons in the same period of 1956.

ATOMIC ENERGY FILM

EAST LANSING, MICH.—A 15-minute color film showing one application of atomic energy in agriculture is being produced by the Michigan State University department of horticulture jointly with the Atomic Energy Commission. The film is one of several the AEC is making to show at the second International Conference on Peacetime Uses of Atomic Energy in Geneva, Switzerland, during September, 1958. The AEC made a \$25,000 grant to M.S.U. for the production of the film. According to H. B. Tukey, head of the M.S.U. department of horticulture, the film will illustrate how atomic energy by-products are used to trace the movement of nutrients through the plant.

Improved Cultural Practices Control Peanut Stem Rot

WASHINGTON—Some new measures for controlling the destructive stem rot disease of peanuts have been developed through cooperative research by the U.S. Department of Agriculture and the state agricultural experiment stations of Georgia and Virginia.

This disease, also known as southern blight, has caused losses aggregating ten to twenty million dollars annually to peanut growers in the southern states.

The new control measures consist of (1) plowing fields so that all surface debris is covered with clean soil to a depth of 3 to 4 inches; (2) planting on flat or on slightly raised beds; and (3) cultivating so that no soil is thrown against the base of the plants during the growing season.

These soil-management practices have effectively decreased the incidence and severity of stem rot disease, USDA reports. In 1956 experiments in Georgia, they resulted in 32% increase in the yield of Spanish peanuts. In Virginia experiments, use of the practices resulted in an 80% increase in yield of Spanish peanuts and 78% yield increase in Virginia bunch peanuts. Present indications are that results in Virginia will be even more striking in 1957 than in previous seasons, USDA says.

FDA Proposes Tolerance Exemption

WASHINGTON—The Food & Drug Administration has published a proposal to exempt residues of tetra copper calcium oxychloride from requirement of a tolerance in or on raw agricultural commodities from pre-harvest application.

George P. Larrick, commissioner of food and drugs, said that evidence taken at the 1950 spray residue hearing resulted in exempting certain copper compounds from the requirement of a tolerance, and that the evidence also warrants including tetra copper calcium oxychloride in the list so exempted. The proposal was published in the Federal Register Jan. 9.

CORN CHAMPION

CHIPLEY, FLA.—A yield of 115 bu. per acre won the Washington County Farm Bureau corn growing contest for V. J. Collins of Caryville, according to J. E. Davis, county agent.

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Solubility of Fertilizers Declared Important Factor In Plant Growth and Yield

By U. S. Jones

Olin Mathieson Chemical Corp.
Little Rock, Arkansas

FOR many years plant nutrition experiments have been carried on to determine the utilization of nitrogen, phosphorus and potassium fertilizers by crops. Of the total amount of nitrogen fertilizer added to a soil, it is possible for 60 to 80% of it to be taken up by the crop in one season.

Of the total amount of potassium added, it is possible for 40 to 60% of it to be utilized in one growing season. Most inorganic nitrogen and potassium salts commonly used in fertilizer are completely water soluble.

Most phosphorus fertilizer, however, is not completely water soluble and is not so efficiently used. It has been determined that not more than 10 to 15% of it is taken up by the current crop.

R. A. Olson and A. F. Drier recently concluded that a much greater recovery of fertilizer phosphorus by the current crop is possible than the 10 to 15% or lower recovery commonly observed in the past. Their data indicate that phosphorus fertilizer efficiency can be improved by proper placement, by nitrogen association with the phosphorus, as well as by initial solubility.

Since ammonium phosphates and ammoniated superphosphates both have nitrogen chemically compounded in the goods, and both are placed in the soil by the same equipment and in the same manner, the primary agronomic consideration, therefore, in a discussion of the merits of these two materials narrows down to a question of the initial water solubility of the two fertilizers. Both are "citrate soluble" according to chemical procedure approved by The Association of Official Agricultural Chemists.

Ammonium phosphates and monocalcium phosphates are water soluble according to AOAC methods; dicalcium phosphates are only slightly soluble; and tricalcium phosphates are not water soluble.

A summary of several agronomic and chemical experiments in which the water solubility of phosphorus was the subject of study will shed light on the subject.

In 1951 an experiment with oats was established at Brooksville, Mississippi (2) on a Hunt clay of pH 6.8 which had a dilute acid soluble phosphorus content of seven pounds an acre. Various types of fertilizers at a rate equal to 600 lb. of 10-10-10 an

acre were broadcast in the fall on top of the ground by hand and disced in lightly. An additional 60 lb. nitrogen from ammonium nitrate was top dressed after the first crop of oat forage was harvested. The experiment was arranged in a randomized block design with four replications. The least amount of difference in yield required for a real difference at odds 19:1 was 588 lb. dry oat forage.

The phosphorus in the ammonium phosphate fertilizer was 95% water soluble, the phosphorus in the nitric phosphate fertilizer was 18% water soluble and the phosphorus in the ammoniated superphosphate was 20% water soluble, according to the official AOAC method.

Yield results indicated that the highly water soluble ammonium phosphate fertilizer produced 5,851 lb. oat forage, the 18% water soluble nitric phosphate produced 4,973 lb. oat forage and the 20% water soluble ammoniated superphosphate produced 4,381 lb. oat forage (Table 1).

It was concluded from this and other experiments like it, that early winter oat pastures treated with fertilizers containing a high content of water soluble phosphorus, such as that in ammonium phosphates, produced higher yields and could carry more animals in the winter than those pastures fertilized with low water soluble phosphorus fertilizers.

In a greenhouse experiment at the Michigan experiment station pulverant fertilizers to supply 80 lb. P_2O_5 were banded for corn and beans. Four materials containing respectively 3%, 19%, 43% and 87% of their phosphorus in water soluble form were used. These materials were prepared by slurry mixing various proportions of monoammonium phosphate and dicalcium phosphate.

The results of these experiments show that at the end of eight weeks both crops had obtained much more phosphorus from the soluble fertilizer than from the less soluble materials.

Other similar experiments showed that soluble fertilizers produce best results when applied in the hill or in bands, and in granular form. Whereas degree of phosphorus water solubility had a marked effect on yields when the fertilizer was applied in the hill or in bands, it had much less effect when the fertilizer was broadcast and mixed with the soil.

In 1954 an Iowa field experiment

with corn, typical of many other experiments conducted in this state, was established in Howard County, on Floyd silt loam of pH 6.2. The dilute acid soluble phosphorus content of the soil was 4.5 lb. an acre. The fertilizers at a rate equal to 300 lb. an acre of 10-10-10 were hill applied. The pH of the soil was 6.2. The least amount of difference in yield required for a real difference at odds 19:1 was 1.8 bu. an acre. Five materials were used containing, respectively, 2%, 14%, 40%, 90% and 100% of their phosphorus in water soluble form.

The yields resulting from increasing solubility of the phosphorus were 79.6, 83.1, 86.6, 88.5, 89.3 bushels per acre. (Table 1.) It was concluded from this experiment and eighteen others carried on for three years, that growth and yield responses from hill-applied phosphorus fertilizer are closely related to the ease with which the fertilizer dissolves in water.

The results of water soluble phosphorus experiments conducted at Ontario, Michigan, Minnesota, Iowa and Nebraska, have recently been summarized by Lawton (Figure 1). These data were obtained for the most part using radio-active phosphorus which is employed along with a Geiger counter to measure accurately the amount of phosphorus fertilizer that enters the plant.

At all of these locations the amount of fertilizer phosphorus absorbed by the crop was directly proportional to

TABLE 3. Differences in 45 Commercial Fertilizers According to Type and Percentage of Phosphorus in Water Soluble Form

Water soluble phosphorus %	Number in each class— Ammonium phosphate	Ammoniated superphosphate
90-100	16	
80-89	4	
70-79	1	4
50-69		15
30-49		4
10-29		1

the percent of the phosphorus soluble in water.

Forty-five fertilizers were collected from dealers and manufacturers to determine the content of water soluble phosphorus and the possible compounds in the mixtures. All but three of these fertilizers contained 30 or more units of plant food. The solubility determinations as well as an estimate of the principal compounds in the goods were made at the Olin Mathieson Plant Food Division laboratories in Little Rock, Arkansas, and Pasadena, Texas. (Table 2.)

Of the 45 fertilizers studied, 24 of them were estimated to be ammoniated superphosphate type fertilizers and 21 were the ammonium phosphate type. Of the 24 ammoniated superphosphates, 15 of them had 50-69% of the phosphorus in water soluble form. Of the 21 ammonium phosphates studied, 16 of them had 90-100% of the phosphorus in water soluble form.

The highest phosphorus solubility

(Continued on page 19)

FIGURE 1

THE RELATION BETWEEN THE WATER SOLUBILITY OF THE PHOSPHATE COMPONENT OF PHOSPHATE FERTILIZERS AND THE FERTILIZER PHOSPHORUS ABSORBED BY CORN PLANTS.

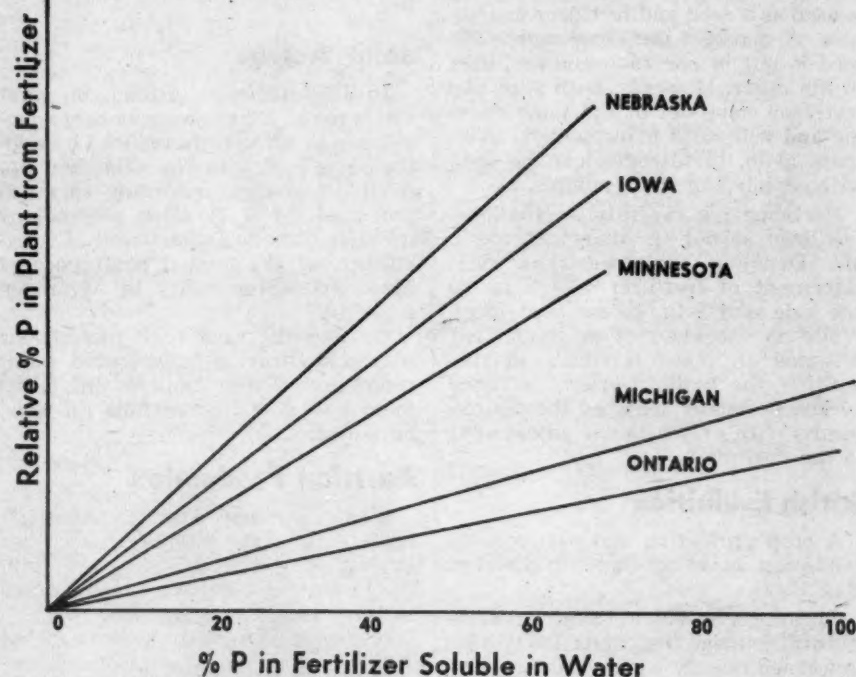


FIG. 2. YIELD OF CORN GROWN ON FLOYD SILT LOAM (PH 6.2) AND FERTILIZED WITH MATERIALS HAVING VARIABLE AMOUNTS OF PHOSPHORUS IN THE WATER SOLUBLE FORM.

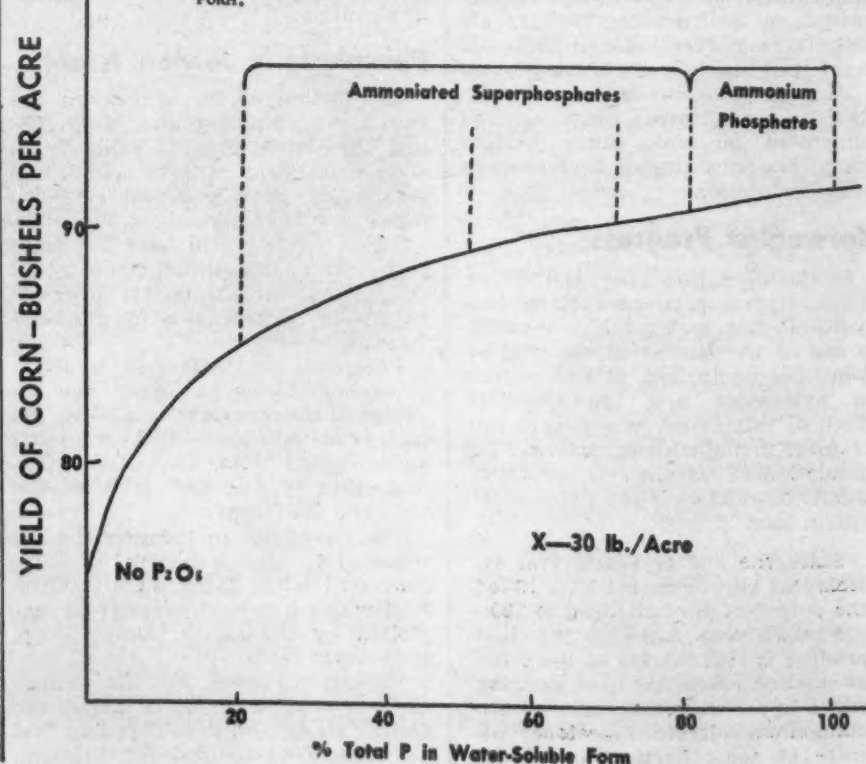


TABLE 1. Fertilizer phosphates for oat forage at Brooksville, Miss., on Hunt clay (pH 6.8).

FERTILIZER ADDED TO GIVE 60 LBS. N, 60 LBS. P_2O_5 , and 60 LBS. K_2O	YIELD lbs./acre	WATER SOLUBLE P_2O_5 %
460 lbs./A. 13-13-13 ammonium phosphate ...	5,851	95
545 lbs./A. 11-11-11 nitric phosphate	4,973	18
600 lbs./A. 10-10-10 ammoniated superphos...	4,381	20
600 lbs./A. 10- 0-10 Check—No phosphate ..	1,401	
L. S. D. .05	588	

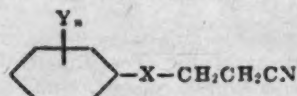
TABLE 2. Fertilizer phosphates applied in hill for corn, Howard County, Iowa, on Floyd silt loam (pH 6.2).

N	P_2O_5 Lbs./acre	K_2O	P_2O_5 water soluble %	CORN YIELD bu./acre
30	..	30	..	75.8
30	30	30	2	79.6
30	30	30	14	83.1
30	30	30	40	86.6
30	30	30	90	88.5
30	30	30	100	89.3
L. S. D. .05				1.8

Industry Patents and Trademarks

2,819,197

Aromatic Propionitrile Nematocidal Compositions and Method of Using Same. Patent issued Jan. 7, 1958, to Philip H. Santmyer, Florissant, Mo. and Samuel Allen Heininger, Dayton, Ohio, assignors to Monsanto Chemical Co., St. Louis. The method of killing parasitic worm life in agricultural soils which comprises contacting the organism with a compound of the structural formula



wherein X is a divalent radical of the group consisting of —O—, —NH—, —S—, and —NR—, in which R is an alkyl radical having up to four (4) carbon atoms; wherein Y is a radical of the group consisting of halogen and alkyl having up to four (4) carbon atoms and wherein n is an integer from one (1) to five (5) inclusive.

2,819,198

Cold-Stable Pesticide Solutions. Patent issued Jan. 7, 1958, to Lyle D. Goodhue, Bartlesville, Okla., assignor to Phillips Petroleum Co., Bartlesville. A normally liquid hydrocarbon solution containing therein dissolved a pesticide ingredient which upon cooling of said solution will become solid and separate from said solution comprising also dissolved therein a hydrocarbon soluble wax in a sufficient proportion that upon cooling of said solution it will form a gel-like structure before an appreciable quantity of said pesticide can separate from the solution, said hydrocarbon being a petroleum solvent having a flash point of at least about 175° F., containing 5-40 weight percent by way of the pesticide base on the entire weight of the solution, and also containing 0.1-6 weight percent of said hydrocarbon soluble wax, the weight of the wax being based upon the weight of the normally liquid hydrocarbon solvent.

2,814,555

Ammonium Nitrate and Urea Explosives. Patent issued Nov. 26, 1957, to William H. Rinkenbach, Salisbury Township, Lehigh County, and William J. Carroll, Jr., Allentown, Pa., assignors to Trojan Powder Co., New York. A blasting explosive consisting essentially of mixed crystals of ammonium nitrate, crystals of urea, and a dry pulverulent absorbent for liquid thoroughly mixed with the said crystals, both the ammonium nitrate and urea being in the form of solid particles of size to pass substantially completely through a 10-mesh screen and to be retained to the extent of at least 50% by weight on 200 mesh and the proportions of the materials being 16-21 parts by weight of urea and 1-3 parts of the absorbent for 100 total weight of the urea and ammonium nitrate.

Industry Trade Marks

The following trade marks were published in the Official Gazette of the U.S. Patent Office in compliance with section 12 (a) of the Trademark Act of 1946. Notice of opposition under section 13 may be filed within 30 days of publication in the Gazette. (See Rules 20.1 to 20.5.) As provided by Section 31 of the act, a fee of \$25 must accompany each notice of opposition.

Suburban, in shaded letters, for anhydrous ammonia and LP gas for commercial, farm, home, and marine use. Filed Sept. 13, 1956, by Suburban Propane Gas Corp., Whippany, N.J. First use 1945.

Nopco, in capital letters, for agricultural oil spray emulsifiers, wetting, emulsifying, and dispersing agents, and a number of other industrial products. Filed Oct. 30, 1956, by Nopco Chemical Co., Harrison, N.J. First use Sept. 1, 1917.

Drawing of circle with lines extending at right angles from the sides, for

muriate of potash. Filed Feb. 28, 1957, by U.S. Borax & Chemical Corp., Los Angeles, Cal. First use in the year 1934.

Penta-Guard, in stencil capital letters, for wood preservatives. Filed March 11, 1957, by Atlantic Chemicals, Inc., Orlando, Fla. First use Jan. 5, 1957.

Mouse Nip, in hand-drawn letters within rectangular box, for chemical rodenticide for use in poisoned grain. Filed March 25, 1957, by Nip-Co. Mfg. Co., New Rochelle, N.Y. First use Feb. 24, 1956.

PV, within diamond-shaped box, for livestock disinfectant and household germicide. Filed April 22, 1957, by F. H. Peavey & Co., doing business as Peavey Feed Mills, Minneapolis, Minn. First use March 22, 1957.

Chevron, in capital letters, for in-

secticides, herbicides, fungicides, wood preservatives, poultry house spray, livestock and poultry spray, petroleum base oils used as solvents or diluents for wood preservatives and mosquito and other pest-control formulations. Filed May 23, 1957, by Standard Oil Co. of California, San Francisco. First use in July, 1947.

Path to Nature, hand-drawn letters, for sphagnum peat, a soil conditioner moss. Filed July 18, 1957, to Anton A. Coreth, doing business as Anton Von Coreth Co., Larchmont, N.Y. First use March 30, 1955.

Solubor, in capital letters, for fertilizer. Filed July 26, 1957, by United States Borax & Chemical Corp., Los Angeles, Cal. First use July 11, 1957.

CALIFORNIA APPOINTMENT

SACRAMENTO—James W. Koehler, senior field assistant in the Bureau of Weed and Rodent Control, California Department of Agriculture, has been appointed assistant bureau chief under civil service.

Soil Builders Contest Announced by NPFI

WASHINGTON—Entries for the sixth annual National Plant Food Institute's "Soil Builders Award for Editors" contest have been invited by the NPFI. Deadline is March 15, 1958, the Institute says.

The contest, sponsored by the NPFI, with approval of the American Agricultural Editors' Assn., will cite editors and their staffs for their 1957 contributions toward building and maintaining soil fertility. The contest participants are divided into two categories: those with more than 300,000 circulation and those with less than that figure.

The two winning editors, with their wives, will be guests of the 1958 convention of the NPFI at White Sulphur Springs, W.Va. The editors will receive scrolls at the meeting, and designated members of their staffs will be given plaques.

Judges for the contest include six agricultural experts.



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FARM SERVICE DATA

Extension Station Reports

Nitrogen was the key element in orchard-grass seed-production in trials conducted by the Virginia Polytechnic Institute Agricultural Experiment Station in the northern Piedmont section of Virginia.

Researchers say that highest yields were obtained where both phosphorus and potash were used with nitrogen fertilizers, however. Potash was important in maintaining the stand.

The results of the trials indicated that about 100 lb. of nitrogen and 50 lb. each of phosphorus and potash per acre were needed to produce high yields of good quality seed in northern Piedmont.

★

The common periwinkle or myrtle is playing an important role in detecting insect carriers of a serious virus disease of peaches and cherries.

Cornell University scientists at the New York State Experiment Station at Geneva are using the little plants with the colorful blossoms as "indicator" plants for the X-disease virus which is transmitted from tree to tree in the orchard by certain insects.

Periwinkle is also susceptible to the X-disease virus, with typical symptoms of the malady appearing within four to six weeks after infection. Similar symptoms often require a year or more to develop in peach and cherry trees, explain the station scientists.

"X-disease, a serious virus disease of peaches and cherries is known to be transmitted from tree to tree by insects, but in order to formulate control measures for these insect carriers and thus control of the virus disease itself, we must first identify the carriers and work out their life histories," they continue.

"Suspected insects are first allowed

to feed on an X-diseased plant so that they can acquire the virus. They are then transferred to a healthy plant for further feeding. If the healthy plant becomes infected with the X-disease virus, we have proof that the insect is the carrier."

Use of periwinkle as the indicator host plant to speed up the identification process has put the finger on at least three species of leafhoppers which have been demonstrated by this means to be carriers of the X-disease virus.

★

Failure to topdress is one of the major factors in limiting alfalfa yields in Virginia, says John F. Shoulders, pasture specialist at Virginia Polytechnic Institute.

For the last several years, alfalfa yields have run around two tons per acre. Controlled tests and experience in the field have shown that yields of 3½ to 4½ tons per acre are by no means unusual under good management.

Mr. Shoulders says many farmers will follow good cultural practice, including proper fertilization, when they are seeding alfalfa, only to omit topdressing.

Each ton of alfalfa hay harvested removed about 45 lb. of nitrogen, 12 lb. of phosphorus, and 45 lb. of potash from the soil. Properly inoculated alfalfa fixes its nitrogen from the air. Phosphorus and potash, however, must be supplied. Boron should also be applied. Alfalfa fertilizers bought in Virginia contain enough of the latter nutrient.

Farmers should topdress each year with from 600 to 1,000 lb. per acre of a 0-10-20 borated, 0-14-14 borated, or the equivalent in other analysis fertilizer. The fertilizer may be applied during the dormant season, or after the first cutting if applied before growth begins. Severe burning will

result if the fertilizer is applied after the new growth has started.

★

After 13 years of experimentation, scientists at the Rhode Island Agricultural Experiment Station have found a solution for a turf maintenance problem that has long puzzled golf course superintendents in the Northeast.

For many years, Piper velvet bentgrass has been considered a superior turf for putting greens in this area. It is well adapted to northeastern soils and climate and has good density, color, texture and considerable disease resistance.

However, golf course superintendents found that when the turf was eight or 10 years old, the mat of undecomposed dead roots near the soil surface created a sodbound condition known as thatch or sponginess.

When this happened, the turf lost its resiliency and was no longer able to support the weight of a golfer without leaving footprint depressions which deflected a putted golf ball. Moreover, the thatch prevented the proper penetration of water, which at times resulted in damage to the turf.

Since 1944, station turf agronomists under the direction of J. A. DeFrance have been experimenting with various rates and combinations of limestone and compost topdressing. During the experiments, the turf was quality rated periodically on the basis of vigor, color, uniformity, density, and weed infestation. The relative sponginess of the turf was measured by a device called a compresometer.

The results clearly showed that limestone was of great value in aiding the decomposition of organic residues in the soil under velvet bentgrass turf. The sponginess in the turf decreased with each increment of limestone.

The experiments also showed that compost helps to overcome sponginess. All plots receiving compost had significantly lower compresometer readings than plots receiving no compost. A compost mixture of one part sandy loam to one part coarse sand

with no organic matter present was the most successful. It not only reduced the sponginess but also improved the surface of the turf, and added new soil containing plant food elements not ordinarily found in commercial fertilizers.

As a result of these studies, the station scientists recommend that limestone be applied to velvet bentgrass putting-green turf at a rate not exceeding 1,000 lb. per acre per year to help reduce thatch.

In addition, a sterilized mixture of sandy loam and coarse sand should be applied at the rate of ¼ cubic yard per 1,000 sq. ft. at least twice a year.

The recommendations need to be followed carefully. Too much limestone encourages weeds, and these weeds may be brought in by unsterilized compost. No organic matter should be added to the compost, since excessive organic matter in the turf is the problem to be overcome.

Chemagro Registers New Insecticide

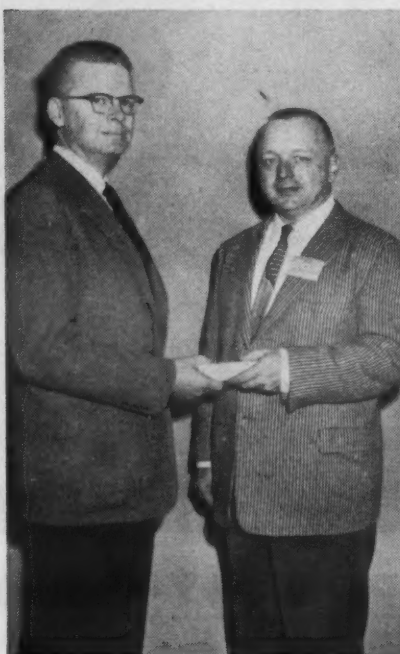
PITTSBURGH — Chemagro Corp., New York, has announced the registration of "Guthion" 12½% wettable powder by the U.S. Department of Agriculture for use on deciduous fruits.

Guthion is being recommended by the firm for control of 11 insect pests on apples and crab apples. These are apple aphid, apple maggot, codling moth, European red mite, two-spotted mite, plum curculio, red-banded leaf roller, fruit tree leaf roller, tarnished plant bug, stink bug and European apple sawfly.

The company also said that Guthion has proven effective against the following insects which attack peaches, nectarines, apricots and quinces: Oriental fruit moth, plum curculio, European red mite, two-spotted mite, tarnished plant bug and stink bug. Guthion will be recommended by the firm on pears for the following insects: plum curculio, fruit tree leaf roller, codling moth, tarnished plant bug and stink bug.

OKLAHOMA TONNAGE

STILLWATER, OKLA.—November fertilizer sales in Oklahoma totaled 1,965 tons.



HONORS AWARDED AT WEED CONFERENCE—Certificates of merit were presented to a number of persons in connection with the 12th annual meeting of the Northeastern Weed Control Conference held in New York in January. At the left, above, Dr. L. L. Danielson, field crops research branch, Agricultural Research Service, U.S. Department of Agriculture, Beltsville, Md., past president of the NEWCC and chairman of the awards committee, presents a certificate to John T. Smith, agricultural agent for York County, Pa., for outstanding contributions to agriculture in his county through planning and organizing better weed control practices as a part of the agricultural extension service program.

Second photo: Philip Gorlin, vice chairman of the public health section of the NEWCC, presents a certificate to Alfred H. Fletcher, director, division of environmental sanitation of the New Jersey department of health. Mr. Fletcher was cited for his efforts in promoting the development of an interdepartmental committee on weed control in New Jersey, and his contributions toward establishment of ragweed control programs in many cities and towns.

In the third photo, Mrs. Edith Bowman, chairman of the public health section of the weed conference, awards a certificate to Louis V. Fucel, executive director of the Hay Fever Prevention Society, Inc., New York City, for his efforts over the past 25 years in supporting and encouraging programs of control and eradication of ragweed plants. Mr. Fucel was founder and organizer of the Hay Fever Prevention Society and served as its first president. Mrs. Bowman was similarly honored at the meeting for her efforts in advancing improvements in weed control ordinances, and for her success in obtaining proclamations from governors of many states since 1949 proclaiming June as "Ragweed Control Month."

Mr. Danielson, in the last photo, is seen presenting a certificate of merit to Dr. C. M. Switzer, assistant professor of botany, Ontario Agricultural College, Guelph, Ont., for his outstanding contributions to research in weed control "as evidenced by the excellence of organization and clarity of concept and presentation of research" presented at the conference held at the New Yorker Hotel.

SHOP TALK



OVER THE COUNTER

By Emmet J. Hoffman
CropLife Marketing Editor

The farm supply dealer should not try to be a psychologist when he hires and trains his employees. He shouldn't complicate the employer-employee relationship. The relationship is not as complex as many employers make it out to be. The dealer should not start a new employee by trying to analyze how he will treat him. Rather, the dealer should decide where and when he will accord him treatment.

These conclusions on employee treatment were outlined by Glen Harmon, manager of training services, General Mills, Inc., Minneapolis, at a recent dealers' short course at the University of Minnesota. Mr. Harmon pointed out that the human relation problem is the same, whether the firm employs three persons or 13,000, the number which work for General Mills.

There are nine where and when situations in which the employer is required to "dish out" treatment to an employee. The nine, according to Mr. Harmon, are: (1) Selection and placement of the employee, (2) orientation, (3) actual start of the employee on the job, (4) normal working assignment, (5) pay, (6) the trouble situation, (7) social relationship, (8) growth, development and security, and (9) letting the employee know what is going on. The first five, Mr. Harmon said, are the most important and are basic.

(1) Selection and placement of the employee: The employer (manager, foreman, owner, etc.) can give the impression that he is hiring a "body" or he can show that he is glad that the new employee has joined the firm. The employee gets the most lasting impressions of the firm and his boss during this period. The employer ought to make sure that he leaves more good impressions than bad ones. The employer should ask himself: Is this fellow all right for the job? and (2) Is the job all right for this prospect? The job and the man ought to be matched.

(2) Orientation: First-day impressions which the employee receives are lasting. What are things the employer can do to make good impressions? Tell the new employee what the firm is trying to do, who are the customers, features of which you are proud. A small thing like telling the employee when to eat and where he can be served is important. The end of the first day is important. An employee who is discouraged by his lack of progress at the end of the first day is one who is conscientious and he usually turns out well. Beware of the one who is complacent at the end of the first day. An employer should stop by at the end of the first day to

offer encouragement and to say, "I'll see you tomorrow morning."

(3) Actual start of the first day on the job: The employer can create the impression that he wants the new employee to be a good and able worker or he can dump him off by saying, "There's a load of bags to unload. I guess you know how to do that."

(4) Normal working assignment: Does the employer show favoritism? Who does what and when? What are the working conditions? Is there a window broken out which remains unrepaired week after week, indicating that the employer just doesn't care?

(5) Pay: Basically, is the new employee satisfied that his pay is fair? There are many standards of fairness but if the employee considers the pay fair, that is the most important standard in the particular situation.

(6) The "trouble" situation: When the employee has a traffic accident, or has a sick member of the family, the employer who wants to give a good impression will be concerned first with the employee. He will not sit in his judgment because the employee may be guiltless. The fair employer will say: "Well, Bill, tell me just what happened and we'll see what we can do." The employer should ask himself whether he condemns or defends in a "trouble" situation.

(7) Social contacts: Does the employer treat all employees in the same manner or does he show favoritism by taking one worker fishing every time? Employers flirt with personnel trouble when they play favorites.

(8) Growth, development and security: The employer should inquire about the employee's personal ambitions, future plans and hopes. It will give both a healthier relationship.

(9) Let the employee know what is going on: Employers can build morale and spirit by letting employees know when business is good, instead of complaining to them when business is not good. Company secrets need not be told but in a general way the business plans and progress should be revealed in fairness to the employees.

In conclusion, Mr. Harmon said that the single most important basis for employee judgment is fairness.

WEED PROGRAM

ATHENS, GA.—A crop and weed study program, sponsored by the Standard Oil Company of Kentucky, has been inaugurated for Georgia 4-H Club members. Awards for the project include an expense-paid trip to the National 4-H Congress and \$100 to the state winner.



PROBLEMS DISCUSSED—Problems of land improvement at Pennsylvania's new Southwestern Field Research Laboratory are discussed with the superintendent, Lewis D. Wissinger, left. Farmer members of the laboratory's advisory committee shown here, left to right, are Clyde Robison of Washington County, Clyde Houck of Indiana County, C. T. Douthitt of Beaver County, Lawrence Hartels, Jr., of Cambria County, and John W. Gaut of Westmoreland County.

Old Farmland With a New Face Site Of New Pennsylvania 'Ag' Laboratory

Old farmland with its face lifted has become the site of Pennsylvania's newest agricultural research laboratory near Ligonier. The new research station was opened last spring.

The face lifting has extended to all but three small plots of land on 140 acres between Ligonier and Stahlstown on Route 381, Westmoreland County. The land has become the Southwestern Field Research Laboratory, operated by the Pennsylvania Agricultural Experiment Station. The laboratory is designed to study grassland farming problems for the 11 southwestern counties.

Pennsylvania State University obtained the land through gifts from Mr. and Mrs. Richard K. Mellon and Mr. and Mrs. Alan M. Scaife and others of Pittsburgh.

The site was visited recently by a

group of farmer-advisors, research scientists from Penn State, supporters from industry, and county agricultural agents.

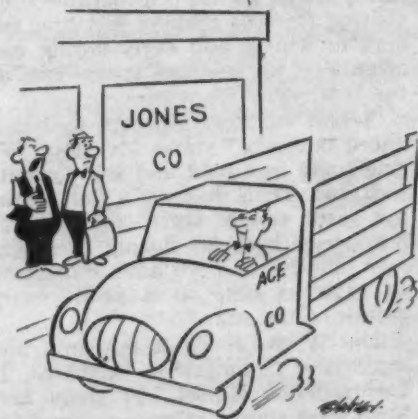
A project catching farmer interest last summer was the use of steel furnace slag instead of lime to correct soil acidity. Slag is calcium silicate, a by-product of steel blast furnaces. Finely ground, the slag is applied to the soil just like lime is applied.

"Results last summer showed no difference in soil acidity between the use of lime or slag," reported Howard B. Sprague, head of the department of agronomy at Penn State. "If used successfully, slag can be purchased in southwestern Pennsylvania at less expense," he added.

Work last summer consisted mostly of getting the land into tillable



DONOR REPRESENTATIVES—Representing donors of land used by Pennsylvania State University for the new Southwestern Field Research Laboratory was Robert H. McClintic of Ligonier, seated right. Mr. McClintic has been instrumental in gaining support of industry for new buildings and equipment. Discussing initial plans for the crops research center were, seated left and center, Dr. Alex Black, assistant station director, and Dr. Howard B. Sprague, head of the agronomy department at Penn State. Standing are Albert E. Cooper, left, professor of agronomy extension, and Harry J. Poorbaugh, assistant director of the Pennsylvania Agricultural Extension Service.



"Ace Co. is the kind of competitor that is easy to hate. You know, quality product, up-to-the-minute equipment and service-minded."

condition. Brush and weeds were removed and the fields were planted to various hays and grasses. Over 200 different plots have been replicated for various legumes, small grains, and winter grasses.

The new research farm will stress hay and grass crops, especially at the beginning. Later work may include vegetable and small fruits research by Penn State's department of horticulture.

Agriculture in southwestern Pennsylvania is built around grassland for beef, dairy cattle, and sheep. There are also potential markets for fresh vegetables and fruits.

Basic plans for the establishment and development of this research farm were made by Albert E. Cooper, professor of agronomy extension; Joseph S. Thurston, county agricultural agent in Westmoreland County where the station is located; Robert H. McClintic of Ligonier, representing the donors; and Dr. Sprague mentioned earlier.

Plans for the future were described during the recent tour by Lewis D. Wissinger, field laboratory superintendent. Tests for several seasons will stress grass and hay crops raised with no lime, partial lime, and full use of lime. The experiments using slag in place of lime will be continued. New studies will stress different levels of fertility.

One pole-type hay barn is being constructed, and another building is under construction for a combined machine shed and farm shop. There will also be a separate building for a combined office and laboratory. Building space has been reserved for a greenhouse and a superintendent's home.

Superintendent Wissinger reported that the research farm produced 55 to 60 bu. of oats per acre in 1957. There was no difference in productivity between the use of slag or lime. About 70 tons of hay were also made. Mr. Wissinger is assisted by Rush Ulery, Jr., and Merle Ankney.

Counties interested in the project are Allegheny, Armstrong, Beaver, Butler, Cambria, Fayette, Greene, Indiana, Somerset, Washington and Westmoreland.

County agents attending the original planning meeting last March declared farmers in the area wanted a research and demonstration farm of this type. It was agreed that farmers need practical research information "from their own back yard."

Representing industrial sponsors of buildings and equipment were Mr. McClintic, mentioned earlier, who is a member of the executive committee, and Lester Ray of Rolling Rock Farms, Ligonier. Howard H. Nuernberger of New Kensington represented the Aluminum Company of America.

County agents on the tour were R. E. Carter of Fayette County, J. Calvin Sammons of Washington County, W. C. Cochrane of Indiana County, A. L. Curran of Beaver County, John D. Gapen of Greene County, Jack Paules of Allegheny County, S. B. Shenk of Armstrong County, and H. C. Terndrup of Cambria County.

Penn State representatives present, in addition to Dr. Sprague, were Dr. Alex Black, assistant experiment station director, George A. Van Horn, associate station editor, and Robert H. Lauck of the College of Agriculture business office.

FARMERS' WEEK

EAST LANSING, MICH. — Scientific progress in agriculture is the theme for Farmers' Week at Michigan State University, Jan. 27-31. Reports on current research and future plans will be made by university crops and soils specialists.



Doing Business With

Oscar & Pat



By AL P. NELSON
Croplife Special Writer

When Pat McGillicuddy came to work that brisk, cold January morning, he was whistling Killarney and feeling quite happy, because he had gotten a spring promotion idea in his sleep and was ready to work on it at once. As he stepped into the warm office, Tillie, the plumpish bookkeeper, was already at work, and so was pudgy, balding Oscar. They always preceded Pat at work, for he habitually arrived late.

At first it used to bother Pat—the look of ill concealed contempt on Oscar's face, as he would look at him and then at the old fashioned wall clock which ticked loudly—but now it didn't bother him very much. People were people, and he and Oscar certainly were not alike.

After Pat took off his grey fur cap and grey stormcoat and faced his desk, he seemed slightly puzzled. There was something different about the surroundings. Then his eyes spotted a large, bright red oil can on the farther end of his desk. It was the five-gallon variety and it stood out like nobody's business.

Puzzled Pat sat down, looked over at school-teacherish Oscar, pencil poised over some bills, and asked, "Oscar, what's the idea of the red oil can?"

"It belongs right there," Oscar said sharply, his eyes never leaving his bills.

"Here? Why?"

Oscar put down his pencil, turned slowly and looked at Pat with cold eyes. "That red oil can is a reminder, ah, of how our business is right now—in the red."

"In the red!" Pat ejaculated. "Holy County of Cork, I thought we had a very profitable year in 1957. How can we go into the red in 1958 with only part of a month gone by?"

"McGillicuddy," Oscar said with tight lips, "can you lend this business \$7,895.63?"

Pat stared. "W—why no, I can't. That's a lot of money. I don't have that kind of green stuff lyin' around."

"Uh, huh!" Oscar said with condemnation in his tone. "Just as I thought. You never pay any attention to what money we have and what we need. All you think of is selling. Ah, you think if you sell, everything is just hunky dory. McGillicuddy, we are in trouble."

"Now, what is this?" Pat demanded. "What kind of trouble, and what's this seven thousand business all about?"

"It's seven thousand, eight hundred ninety five dollars and sixty three cents, McGillicuddy," Oscar said. "That's how much money farmers owe us right now—this morning."

Pat whistled. "Gosh, is it that much?"

Oscar snorted. "Yes, it is. I figured it twice. And why is it so high?"

Pat held up his hand. "I know. Don't tell me. Because I didn't collect enough in December."

Oscar smiled thinly. "Oh, so you know, do you? You didn't collect anything, Irish. You spent the whole month helping rural schools arrange their Christmas programs. You talked at farmers' Christmas parties, you cooked up those crazy free dinners at the hotel for farmers that bought lime in the last three weeks. You went on a Christmas tour of towns nearby with the Chamber of Commerce men. Ah, McGillicuddy, you did everything but collect. And now we ain't got any money, and we have to borrow from the bank."

"But—but those good will things couldn't be done at any other season except Christmas, Oscar. I was pretty busy. I intended to collect, but there just wasn't time. Besides farmers don't want to be bothered with collections at Christmas."

Oscar snorted. "Well, I like them to be bothered. Ach, what do I care if a farmer buys his wife one of them—them black nightgowns for Christmas just because he feels foolish. I don't care if he pays us first what he owes us. But when he skips payin' us and buys that stuff, then I get mad."

"Well," said Pat a little worriedly, "I think I will go right out this week and collect and see if I can bring some of this money in. You know, Oscar, if you wouldn't hound me so much about these bills, maybe I'd go out more often. Nobody likes to be nagged."

Oscar straightened. "If I didn't keep after you, we would never get any money in. You would let everybody buy what they want, ah, even if their credit was no good. You just wouldn't check. You let them take you in with promises, promises, promises. I want the cash. They don't pull that 'I can't pay right now' stuff with me. Cash or no goods, that's what I believe in."

Pat McGillicuddy looked at Oscar for a long time. Fire flashed between the men. Tillie, the plumpish bookkeeper, had long ago gone across the

street for coffee. She refused to listen to any more quarrels between the two partners. And she had her application in for a better job with three employment bureaus.

"Oscar," Pat said slowly, his tones full of ice, "just how did we get into business together anyway?"

Frugal Oscar laughed. "You wanted to buy this business and you went to banker Otto Giesen for some money. Ach, and he told you where to get it and a partner, too. He knew what he was doing. He knew you needed someone to hold you down. You didn't make a mistake when you got me as a partner. I made the mistake when I got YOU!"

Pat McGillicuddy looked as if the gaiety of the morning had dissipated from his soul. "Even so," he said, "that is open to question. And you sure wasted money when you bought that new oil can. We've got an old one. This is pure waste."

Slowly Oscar shook his head. "Oh, no, I didn't. I borrowed this new can from the hardware store for one day. I will take it back tonight. It will not cost me one red cent, this little lesson."

Pat's face was white, and he got up and walked into the warehouse. How quickly, he thought, a bright, cheerful morning could turn into a dismal, gloomy affair. Especially when the wrong people came into the picture.

New Jersey Tomato Growers Provide Good Business for Mullica Hill Dealer

A national soup manufacturing company has a tomato buying station right across the street from the W. A. Jones & Son farm supply store at Mullica Hill, N.J. Therefore, it is only natural that in an area like this, Harold C. Ott, owner of the W. A. Jones firm, should sell spray materials of many types.

It is only natural, too, that this farm supply dealer should offer a spraying service for tomatoes and other vegetables. Mr. Ott has three spray outfits. One is a Friend, another is a Hardy with 500-gal. tank and a third is a Hardy with a 250-gal. tank. Rather than use his regular mill and store crews for such spraying, Mr. Hardy hires capable farmers who handle the three spray rigs for him. These men like this work each year and are able to do it and still handle their own farm work.

"Our spraying jobs on vegetables in this area may run from \$30 to \$200," states Mr. Ott, "depending upon the acreage and the materials used. Vegetable growers in the region have really discovered that spraying pays off."

He states that on a certain test plot, a tomato grower irrigated and sprayed tomatoes on one patch of ground and got 15 tons of tomatoes. On another patch of ground, equal in footage, he did not irrigate nor spray and the yield was only one ton of tomatoes. News about this experiment spread quickly through the area and helped the Jones firm get more spray jobs and sell more material.

These spraying crews also spray alfalfa hay, corn, carrots and asparagus, states Mr. Ott. They spray corn twice, once pre-emergence and once later. On carrots DDT with copper has seemed to give good results. On asparagus Du Pont Cormex has given fine results. Heptachlor was used ef-

fectively on alfalfa hay and Delsterol was used on corn. On tomatoes Rohm-Haas Rothane has worked well.

Due to wind conditions, Mr. Ott's crews must often spray at night, using lights. Thus it is that farm crews are often more available for such work than others who prefer to work days.

"We have sprayed about 4,000 acres this year which is rather low for us," states Mr. Ott. "This has been a very dry year in New Jersey and there hasn't been as much spraying as usual."

In his farm supply store Mr. Ott has a large stock of insecticides and other farm chemicals. Many of the smaller packaged items are placed on wooden wall shelves and store built islands. Many small acreage gardeners and home owners come here to buy insecticides and other chemicals for gardens and lawns. The store also has a big stock of hand sprayers.

Mr. Ott also sells fertilizer to farmers and to vegetable growers in considerable tonnage. The selling of fertilizer to vegetable growers ties in very well with the spraying business. Mr. Ott who spends considerable time visiting farmers seeking fertilizer orders in winter and early spring can often line up summer spray jobs at the same time.

"I feel we have a pretty well balanced business," states Mr. Ott. "We grind and mix feed and sell formula feed, too. Then we have a fine, growing farm supply store. Add to this our spray business during the summer months, and we have something to keep us busy at a profit every month of the year."

The W. A. Jones & Son mill and store is a landmark in this area. It was founded almost 100 years ago. Mr. Ott, a supply salesman, bought it in 1950 and has added the farm supply lines and the spraying service.

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fired edges

late
maturity

uneven growth

weak straw

chaffy kernels

white spots
early

fired edges

later



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*You Sell More
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see next pages
for more

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For more than 22 years, the American Potash Institute has helped expand the markets for fertilizers on American farms.

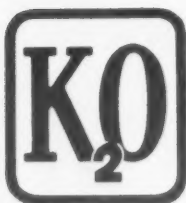
During this period, tonnage of fertilizers purchased by American farmers has made the most dramatic gain in the history of the fertilizer industry (see chart, lower right).

These tonnage gains have been the direct result of an increasing awareness by farmers of the role balanced fertility programs can play in more profitable farming. Many individuals and groups have helped to create and expand this awareness.

The American Potash Institute is proud of having shared in this joint effort. A service organization, it is designed, equipped, always glad to help you expand the demand for balanced plant foods.

Following are descriptions of some of the services available, *right now*, through the Institute. These services can help you sell fertilizer. You are invited to make use of them. Simply mail the coupon at the upper right, or get in touch with the American Potash Institute representative in your area.

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Practical scientists of stature and long experience in your area, these men (to see photos, turn page) are glad to give advice and help in any way they can.

SLIDE SETS



Potash deficiency symptoms, soybean fertilization, alfalfa production—these important stories are clearly told in Potash Institute color slide sets, each with its own accompanying narration. You can use them for dealer or customer meetings. Teachers and agricultural advisers use them for classes and farm meetings.

FERTILIZER DEMONSTRATIONS



In cooperation with official agricultural agencies, Potash Institute staff members help set up field demonstrations, which show farmers the value of correct fertilizer usage.

ADVERTISING



The American Potash Institute carries on an extensive advertising program throughout the United States and Canada. The four-color message on the preceding page is one of the regionalized advertising messages which will appear in major farm magazines this spring and summer. This advertising program sells fertilizer for you.

AID TO FARM PRESS, RADIO, TV



Potash Institute staff members work closely with farm magazine editors, radio and television farm directors. Many articles, photos and broadcasts stressing improved soil fertility practices have been originated or aided by Institute agronomists.

MONTHLY MAGAZINE



The American Potash Institute's magazine—*Better Crops with Plant Food*—is read and studied by agricultural leaders. Articles in *Better Crops* are written by authorities in the soil fertility field. Its circulation exceeds 25,000.

MOTION PICTURES



For dealer meetings, customer meetings or showing on local television stations, use a free-loan Potash Institute motion picture. Over 300,000 people see them annually. There are full-color sound pictures on soil testing, deficiency symptoms, tissue tests, and other subjects. Send coupon above, right, for full list and how-to-borrow instructions.

REPRINTS OF SOIL FERTILITY ARTICLES



From 300,000 to 400,000 are distributed annually. These reprints from *Better Crops* go to high school and college classes, and are used by the fertilizer industry as direct-mail or over-the-counter fertilizer educational materials.

FERTILIZER

Institute offers
in use today

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Potash Institute charts, on nutrient deficiencies, plant food utilization by crops, and other soil fertility topics, have become standard sources of farm knowledge on fertilizers. They are available for your use, for display purposes.

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American Potash Institute graduate fellowships and research grants in some 40 states and provinces have helped train a large number of professional agronomists for responsible positions in the fertilizer industry, colleges, experiment stations and the federal government. The research thus sponsored has developed valuable information concerning correct fertilizer usage, leading to higher levels of fertilizer consumption.

ABSTRACTS



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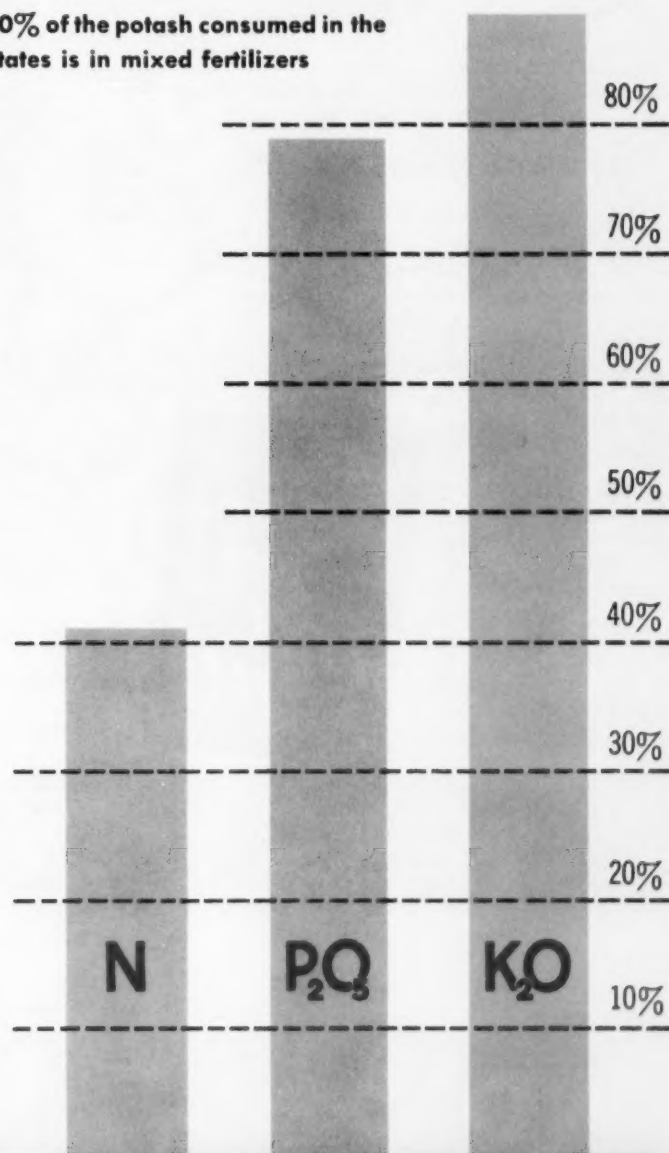
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RELATIVE CONSUMPTION OF PLANT NUTRIENTS IN MIXED FERTILIZERS

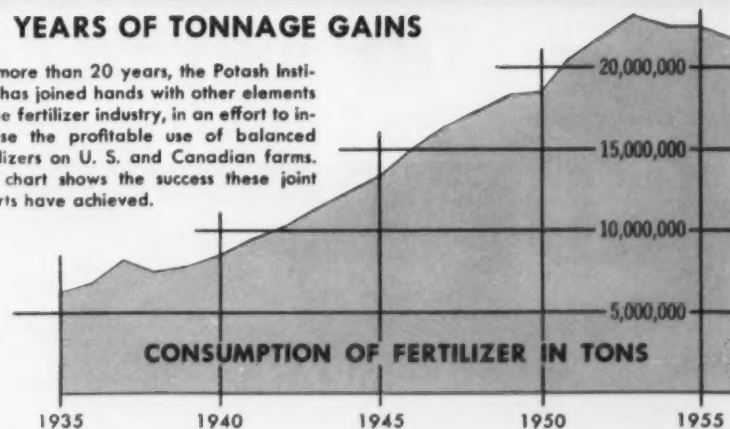
(Source: U. S. Dept. of Agriculture, June 1957)

Nearly 90% of the potash consumed in the United States is in mixed fertilizers



22 YEARS OF TONNAGE GAINS

For more than 20 years, the Potash Institute has joined hands with other elements of the fertilizer industry, in an effort to increase the profitable use of balanced fertilizers on U. S. and Canadian farms. This chart shows the success these joint efforts have achieved.



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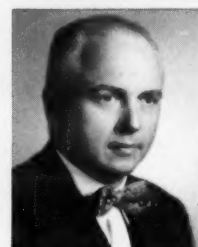
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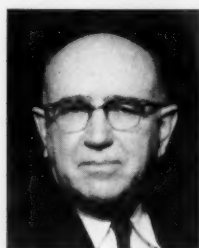
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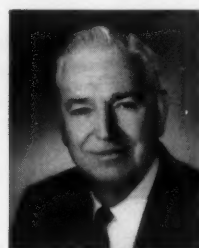
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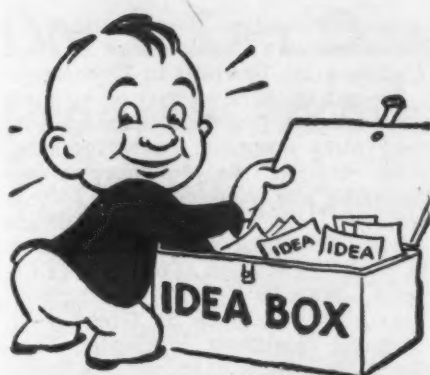
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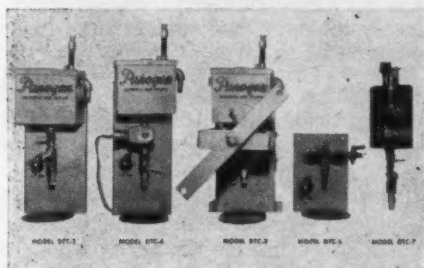
What's New...

In Products, Services, Literature

You will find it simple to obtain additional information about the new products, new services and new literature described in this department. Here's all you have to do: (1) Clip out the entire coupon and return address card in the lower outside corner of this page. (2) Circle the number of the item on which you desire more information. Fill in your name, your company's name and your address. (3) Fold the clip-out over double, with the return address portion on the outside. (4) Fasten the two edges together with a staple, cellophane tape or glue, whichever is handiest. (5) Drop in any mail box. That's all you do. We'll pay the postage. You can, of course, use your own envelope or paste the coupon on the back of a government postcard if you prefer.

No. 5927—Conversion Kits

The Panogen Co. has announced a series of five "dust-to-Panogen" conversion kits. With the help of one of these kits, the owner of a dust treat-er, grain-loading auger, or any other system which adequately mixes seed,



may use liquid Panogen seed treatment and do so inexpensively, company officials claim. Various kit models are designed for gravity feed from elevated containers, for use where the container of liquid is in high locations and for use where the liquid is circulated via a pump. Further information may be obtained by checking No. 5927 on the coupon and mailing it to this publication. Please print or type the name and address.

No. 6679—Fertilizer Bagger

A four-page bulletin describing the new Bemis Rapid-Weigh bagger for fertilizers is now available. The bulletin contains performance and engineering data on the bagger, which fills bags with pelleted, granular and meal type fertilizers at speeds up to 24-100 lb. bags per minute. Weight tolerances average plus or minus 2 oz., according to the manufacturer, the Bemis Bro. Bag Co. Secure the bulletin by checking No. 6679 on the coupon and mailing it to Croplife. Please print name and address.

No. 6678—Brush Control Booklet

Weeds and brush along power and telephone lines, railroad right-of-ways, pipelines, public highways and on industrial sites such as tank farms can be cleared chemically at a cost averaging one-third below that of hand or mechanical cutting, claims a booklet on the subject published by the Monsanto Chemical Co. The 24-page booklet states that various formulations of 2,4-D and 2,4,5-T and mixtures of these chemicals now make possible year-round programs of foliage, basal and stump spraying for maximum weed and brush control at substantial long-term savings of time and money. A feature of the new booklet is a chart which lists more than 50 common woody plants controllable with 2,4-D, 2,4,5-T and combinations of these chemicals and the recommended rates of foliage spray for each. Secure the booklet by checking No. 6678 on the coupon and mailing it to Croplife. Please print or type name and address.

Also Available

The following items have appeared in the What's New section of recent issues of Croplife. They are reprinted to help keep retail dealers on the regional circulation plan informed of new industry products, literature and services.

No. 6672—Materials Handling Survey

Illustrated literature outlining details of a materials handling survey has been prepared by the Towmotor Corp. The literature describes in detail the system in which "expendable" cardboard pallets are employed in combination with hydraulically-operated "Side Shifter TowLoader" attachments. The literature is labeled "Certified Survey No. 179." The reader may secure the report by checking No. 6672 on the coupon and mailing it to Croplife.

No. 6670—Equipment Bulletin

General Metals, Inc., has prepared a new bulletin (201) listing information about its facilities, products, personnel and other general information. The company makes a line of equipment for handling liquid fertilizers, from storage tanks to field applicators, as well as many other lines of equipment such as conveyors, industrial trucks, tanks of steel, aluminum or stainless steel, duct work, ventilators, etc. The bulletin may be secured by checking No. 6670 on the coupon and mailing it to Croplife. Please print or type name and address.

No. 6675—Boom Control Valve

A new series of boom control valves has been added to the Delavan line of agricultural sprayer products, announces the Delavan Manufacturing Co. The valve will be called the 5600 series. The valve incorporates the features available in the 2800 series plus a 3/4 in. accessory or hand gun outlet. The 5600 series is available with 1/4 in., 3/8 in., 1/2 in., and 3/4 in. inlet and bypass openings. The available outlet sizes are 3/8 in. and 1/2 in.



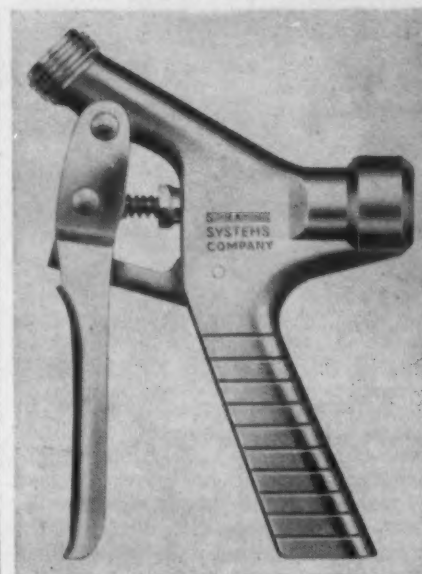
Each valve is provided with a 1/4 in. gauge outlet. It is constructed of die-cast aluminum and stainless steel. Internal seals of the 5600 valve are a combination of stainless steel and a plastic material resistant to the corrosive effects of agricultural chemicals, it is claimed. Check No. 6675 on the coupon and mail it to Croplife to secure details. Please print name and address.

No. 6667—Hydraulic Drum Lift

The Sterling, Fleischman Co. announces the production of its new model CP-1 hydraulic drum lift for controlled pouring. Company officials say that the unit's gear reducer control device is completely enclosed and assures self-locking and absolute control at any pouring angle. The unit is designed to handle 55-gal. drums and can be adapted to handle other sizes in steel or fibre drums on special order. The lifting capacity is 750 lb. and the lifting height is 70 in. Check No. 6667 on the coupon to secure details.

No. 6671—Trigger Valve

A new trigger valve has been announced by the Spraying Systems Co. for use with turn-handle type spray



guns. Positive shut-off is provided for pressures up to 800 psi. Named the No. 46 trigger valve, the unit has these features: "The valve assembly is a heavy duty unit, employing packing and packing nut for a leakproof seal. The large trigger handle, formed to give comfortable full hand grip, is made of plated steel for strength and long lasting service. A heavy duty trigger lock for spraying in open position is locked by a touch of the index finger . . . and releases as soon as the trigger is pressed." The valve is also supplied with adapters for directly connecting nozzles and extensions to make a spray gun. For details check No. 6671 on the coupon and mail it to Croplife.

No. 5911—Multiwall Paper Bag

A new type of multiwall paper bag having as its main feature a pasted valve reducing insert that permits standardization of pallet patterns regardless of the density of the packaged product has been developed by the Multiwall Bag Division of the Owens-Illinois Glass Co. in cooperation with the Wyandotte Chemicals Corp. The bag is said to further lend itself more readily to high-stacking. The valve reducing insert makes it possible for the company to make a bag of standard length and width—but with a thickness when filled that

Send me information on the items marked:

- | | |
|--|--|
| <input type="checkbox"/> No. 5909—Bulk System | <input type="checkbox"/> No. 6672—Materials Handling |
| <input type="checkbox"/> No. 5911—Bag | <input type="checkbox"/> No. 6674—Bag Packer |
| <input type="checkbox"/> No. 5923—Bulk Scale | <input type="checkbox"/> No. 6675—Valve |
| <input type="checkbox"/> No. 5927—Conversion Kits | <input type="checkbox"/> No. 6676—Mixer-Spreader |
| <input type="checkbox"/> No. 6667—Drum Lift | <input type="checkbox"/> No. 6677—Pumps |
| <input type="checkbox"/> No. 6670—Equipment Bulletin | <input type="checkbox"/> No. 6678—Brush Control |
| <input type="checkbox"/> No. 6671—Trigger Valve | <input type="checkbox"/> No. 6679—Bagger |

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may range anywhere from 3½ in. up to 6½ in. The new bag is three-ply and uses two 40 basis weight sheets and one 50 basis weight sheet of natural Kraft paper. Secure details by checking No. 5911 on the coupon and mailing it to this publication. Please print or type name and address.

No. 5923—Bulk Scale

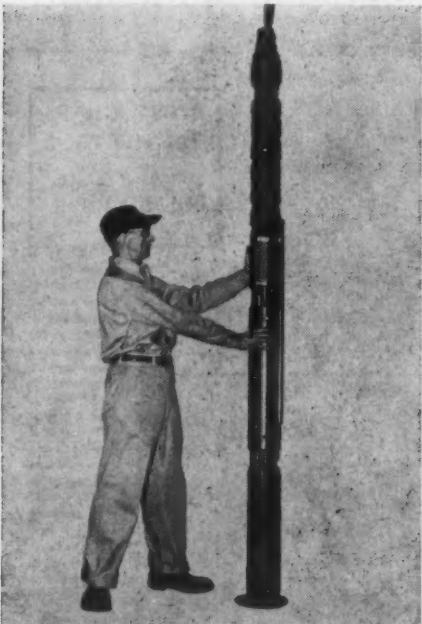
The newest addition to the materials-handling line of the Burrows Equipment Co. is a 1,000-lb. model 1200 bulk scale. Company officials said the "heavy-duty scale features a built-in Fairbanks-Morse scale to weigh any lot of material down to the ounce, accurately and quickly, as it is handled." The unit is 38 in. high and 30 in. wide, and has a hopper 40 in. in length. All controls—two-wheel foot-brake, scale, dump handle and pushing handle—are lo-



cated at the rear, within easy reach of the operator. Standard equipment includes 10 in. rubber wheels at the front and 6 in. roller bearing swivel casters at the rear. Details may be secured by checking No. 5923 on the coupon and mailing it to this publication.

No. 6677—Submersible Pumps

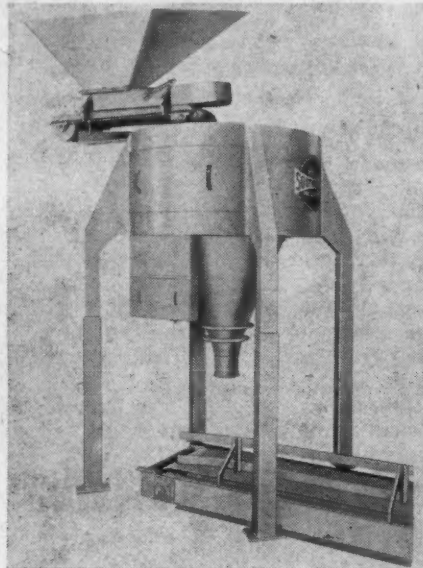
A new line of 6-in. diameter submersible pumps has been placed into production by the F. E. Myers & Bro. Co. The new line is particularly suitable for deep well installations where large volumes of water are needed, company officials state. The pump can be installed in wells as deep as 700 ft. The line's top capacity at a 50-ft. depth is more than 13,000 gal. of water an hour. It is called the



"SC" submersible pump and operates completely under water. It is a combined pump and motor unit. The pump is available in 5, 7½, 10 and 15 hp. sizes. Secure details by checking No. 6677 on the coupon and mailing it to Croplife. Please print or type name and address.

No. 6674—Bag Packer

The Chase Bag Co. is distributing a new bagging unit for the fertilizer industry. It is called the "Southland Packer" and it is described as a completely automatic, all-electric device for filling and weighing open mouth



textile or multiwall paper bags. It is manufactured by the Chattanooga Boiler & Tank Co. and is distributed exclusively by Chase. It is claimed that the unit will handle 50-, 80- and 100-lb. multiwall paper bags at 25 bags per minute as a typical working speed. Sustained high accuracy of weights over an extended run is guaranteed. Fertilizer and any other granular or free flowing material can be packed. Chase officials state: "Minimum change-over time from one analysis to another is an outstanding feature." Cylindrical hoppers and buckets allow a clean and complete flow of material. Simplicity of design reduces maintenance costs and problems. Parts are standardized and can easily be interchanged in plants where more than one packer is in use. No air or hydraulic fittings are used. The packer is made from 12 gauge or heavier steel plate and requires no external bracing for rigidity. The feeder is of the continuous operating type, using a ½ h.p. gear-enclosed motor to operate its endless belt, over 8 in. self-cleaning pulleys. Check No. 6674 and print the necessary information on the coupon and mail it to Croplife to secure details.

No. 5909—Bulk Storage System

The Butler Manufacturing Co. has available details of its bulk storage system for all free flowing dry granular materials. The company's bulk tanks are available in sizes from 2.1 to 34.8 ton capacities. The all-steel tanks can be served by different types of conveying equipment that includes augers, buckets, elevators, belt conveyors and pneumatic fillers. Check No. 5909 on the coupon and mail it to this publication. Please print or type name and address.

No. 6676—Mixer-Spreader

A new mixer-spreader optional feature to the Simonsen fertilizer spreader has been placed on the market by the Simonsen Manufacturing Co. This development was designed by Simonsen engineers to meet the needs of operators who want to stock straight ingredients yet offer a wide variety of ratios, company officials said. It permits carrying a small inventory while giving added service. It is claimed that the mixer-spreader accurately mixes the ingredients as it spreads. The compartments are filled



with the ingredients and the gate on each compartment is adjusted for the desired ratio. A stainless steel conveyor carries all the ingredients to the distributor fan where they are mixed and spread. The feature is available, with a choice of two or three compartments. Existing Simonsen fertilizer spreader boxes can be modified to the new mixer-spreader. More information may be obtained by checking No. 6676 on the coupon and mailing it to Croplife. Please print or type name and address.

New England News Notes

By GUY LIVINGSTON
Croplife Special Correspondent

Strong demand for farm products continues at a high level in southern New England and record farm output is assured for 1958, it was reported by the Department of Agricultural Economics and Farm Management at the University of Massachusetts. The strong domestic demand for farm products stems from high level business conditions typical of the past two years, it was pointed out. In recapitulation, the report said:

In New England the apple crop was 11% above average, the cranberry crop slightly up despite dry weather, feed crop production setting a new record and milk production rising. New England apple production was estimated at 7.6 million bushels, an increase of 51% over last year's small crop and 11% more than the 10-year average production. Apples matured early. Harvesting was generally 10 to 12 days earlier than last year and about a week earlier than normal. The drought in southern New England was responsible for the medium size of this year's apples, however quality was reported as good to excellent.

Massachusetts cranberry production was estimated at 570,000 barrels, 118,000 barrels more than was harvested in 1956 and 2% over the 10-year average. Crops on dry bogs did not do too well because of early spring frosts and dry summer weather. The berries, in general, were of very good size and quality.

New England honey production for 1957, estimated at 1.7 million pounds, was 12% larger than the 1956 crop. New England potato production for 1957 was estimated at 40.9 million cwt. Production in 1956 totaled 45.9 cwt. while the seven-year (1949-55) average production is 38.7 million cwt. Potato production in Massachusetts in 1956 was 1.2 million cwt. The production for 1957 is estimated to be 1.1 million cwt., 10% under last year.

Record crops will insure a good supply of feed grains for the next feed year, the report stated.

New Hampshire produced 1,340,000 bu. of apples in 1957 as compared to only 830,000 bu. in 1956. Also improved was corn production, up 33%.

Conservation Awards

Framed certificates testifying to outstanding work in soil and water conservation have been presented to 15 farm cooperators in the state by the Massachusetts Department of Conservation. The awards were presented by Charles H. McNamara, state commissioner of agriculture and chairman of the State Soil Conserva-

tion Committee, at the meeting of the Massachusetts Association of Soil Conservation Districts in Worcester.

Award winners carried on soil and conservation practices such as contour strip cropping, cover cropping, crop rotation, pasture improvement, drainage and land clearing. District winners were: Berkshire, Edward Wylde, Williamstown; Franklin, Herbert G. Purrington, Colrain; Hampshire, David Tyler, Chesterfield; Hampden, Dorrance T. Green, Wilbraham; Northeast Worcester, Walter A. Janowicz, Sterling; Northwest Worcester, Willard Salde, Hubbardston; Essex, Michael and Paul Fitzgerald, Haverhill; Middlesex, Howard Longly, Shirley; Bristol, Marshall E. Perry, South Westport; Plymouth, Joseph Teeling, North Middleboro; Norfolk, Harold Nason, Bellingham; Barnstable, Olle H. Lund, Brewster; Nantucket, Ralph P. Marble, Nantucket; Dukes, Robert Norton, West Tisbury; and Southern Worcester, Axel Johnson, Dudley.

Exchange Dissolved

The Boston Fruit and Produce Exchange, situated on the second floor of the Quincy Market Bldg. in Boston, has gone out of existence after 74 years. Dissolution of the organization was caused by a falling off in membership because of the diminishing number of independent dealers as contrasted to large chain operators.

Mr. Chips Retires

"Mr. Chips of the Extension Service," Earle H. Nodine, assistant state 4-H club leader at the University of Massachusetts, retired Dec. 31 after 38 years teaching and working with an estimated 38,000 youngsters in garden, conservation, poultry and other projects.

The retired club leader has worked with more than 150 different 4-H club agents in the counties and 17 on the state staff during his tenure that started shortly after World War I, in which he served with the 26th Yankee Division on five major fronts, and came to a close in December with a round of recognition parties, dinners and testimonials.

California Weather Bulletin Undergoes Change

SAN FRANCISCO—With the start of 1958, the weekly California Weather and Crop Bulletin, previously issued by the United States Weather Bureau in San Francisco, is being released by the California Crop and Livestock Reporting Service in Sacramento.

W. C. Jacobsen, California director of agriculture, said the changeover is the result of a cooperative arrangement between the Weather Bureau and the state and federal departments of agriculture. The Weather Bureau will continue to compile the weather information contained in the bulletin, based on reports from weather observers throughout the state. The number of California stations supplying temperature and precipitation data weekly for the bulletin will be increased from 25 to 45.

Additionally, said Mr. Jacobsen, the California Crop and Livestock Reporting Service will utilize the volunteer services of key persons in each county to regularly contribute information on crop conditions and progress.

The Weather-Crop Bulletin will be released at 12 noon each Tuesday, and will contain a summary of information on weather and crop conditions for the week ending the previous Friday. The first of the new reports was issued in Sacramento Jan. 7.

STORE CHANGES HANDS

TOPEKA, KANSAS—The Allied Growers Seed Co. here has been purchased from Mrs. Winifred S. Smith by Harvey D. Scholten, who has been manager of the store for nine years. The firm sells fertilizers, insecticides and other farm supplies.

Dutch Elm Disease Control Program Workable, Scientist Tells Wisconsin Conference

MADISON, WIS. — Beetles, that spread Dutch elm disease, termites, mosquitoes, lake flies, other insects, weeds and diseases of fruit, vegetable, field and forest crops were given a thorough going-over at the 12th annual Wisconsin Insect Control Conference with Industry here Jan. 8-9.

Sponsored by the entomology department of the College of Agriculture at the University of Wisconsin, the two-day meeting was attended by more than 200 pest control experts, representatives of insect control firms and municipal officials. They discussed the continuing fight of city and farm dwellers against these pests, which could eat them out of house and field unless controlled.

"There's good evidence that Dutch elm disease can be controlled if enough people get behind a program and work," declared George Hafstad, who heads this disease work for the Wisconsin State Department of Agriculture.

His recommendations for control follow the same pattern as last year—a sanitation program including the removal and destruction by burning of diseased or weak elm trees, dead branches and wood piles, and a DDT spray program done by April 15. He set the April 15 deadline so that DDT would be on the trees before the disease-spreading beetles emerge and to prevent song-bird deaths.

Mr. Hafstad reported that the department is helping communities in southeastern Wisconsin (which is where the infestation is concentrated) with sanitation programs, and has done beetle emergence studies which determined that the small elm bark beetle can overwinter in Wisconsin.

Immunity to Dutch elm disease in the elm family, at this time, is unknown; but selective breeding programs for resistant variety are being carried on by researchers in the Netherlands, the U.S. Department of Agriculture and at the University of Wisconsin, reported E. B. Smalley, professor of plant pathology.

Mr. Hafstad explained that elm species vary in their reaction to the disease: Asian elms show the greatest resistance; European and English elms show a moderate resistance; and Dutch and American elms are highly susceptible.

Dr. John Casida, University of Wisconsin entomologist, reported on research with systemic insecticides which hold hope of controlling the elm bark beetle. The systemic insecticide is injected into the trunk of the elm and carried throughout the tree in three to five days. He added that there are no indications that in the next 12 months any recommendations can be made for broad-scale experimental testing of systemics in elm for control of Dutch elm disease.

Dr. E. R. Oatman, Wisconsin entomology professor, told of a number of promising new materials tested for insect control on apples in Wisconsin. He named Sevin, Guthion, Trithion and Diazinon. He also commented that the regularly recommended apple spray program of alternating lead arsenate with DDT still gives good control of insects where properly timed and thoroughly applied. He said that Genite 923, ovex or Mitox, when applied as pre-blossom applications, has controlled European red mite in Wisconsin.

For this season the Wisconsin Agricultural Experiment Station has a revised recommendation for the use of granulated insecticides for the control of first generation corn borer during July, Dr. J. W.

Apple, University of Wisconsin entomologist, reported.

The recommendation for treatment of fields to be used for ear harvest calls for .7 lb. to 1 lb. of DDT per acre or 15 lb. to 20 lb. 5% granules per acre.

For treatment of fields to be used for ensilage the recommendation is for 1 lb. of heptachlor per acre or 20 lb. 5% granules per acre. Dr. Apple said that there is no change in the recommended materials for spraying or dusting which call for 1.5 lb. to 2 lb. of DDT per acre for ear corn and .5 lb. to .8 lb. of parathion per acre for ensilage corn.

Farmers should avoid using DDT on corn to be ensilaged because this material persists on plants for several weeks and, if present on silage fed to dairy animals, it would appear in the milk, Dr. Apple said.

The most serious insect control problem on vegetables in 1957, stated R. K. Chapman, entomology professor at Wisconsin, was insect resistance to insecticides. This problem occurred in three major vegetable crops—cabbages, potatoes and onions.

The most spectacular and troublesome of these problems was the resistance of onion maggot to a number of chlorinated hydrocarbon insecticides which failed to control this pest, he pointed out. In addition to the onion maggot, flea beetles on potato and caterpillars on cabbage have also become resistant to DDT, continued Dr. Chapman. As a result, new materials or combinations of insecticides must be used for best control.

Another serious problem on vegetables in 1957 was the aster-yellows disease which is a virus transmitted

by the six-spotted leafhopper. Many fields of lettuce were abandoned by growers because of the disease, and celery and carrot crops had reduced yields. Potatoes, too, were affected. To control this problem, early and very frequent applications of materials such as DDT or malathion must be applied throughout the season. Dr. Chapman added that some new systemic insecticides, applied at the time of planting, are showing promise in controlling the six-spotted leafhopper.

Economics played a part in the forest insect control discussion. M. J. Stelzer, one of Dr. R. D. Shenefelt's research assistants in entomology, told of his research on the economics of benzene hexachloride spray on jack pine in northern Wisconsin.

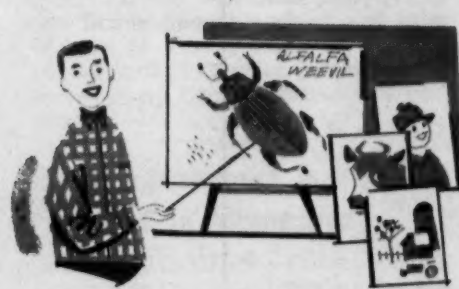
He concluded that a gain of 51¢ per cord of pulp wood is made by treating the wood with the chemical. Treating was found to save 75¢ per cord; the cost of treating was 24¢ per cord with the resulting 51¢

(Continued on page 21)

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WEED OF THE WEEK

Mr. Dealer—Cut out this page for your bulletin board



Broad-Leaved Plantain

(*Plantago rugelii*)

How to Identify

This plant, appearing in turf and areas other than cultivated land, is a perennial, reproducing by seed. It is found in yards, pastures, lawns, and waste places. Its leaves grow close to the ground and the flowering stalk may extend upright from 3 to 6 inches. Leaves are oval-shaped, measuring from 1 to 8 inches in length, and have smooth margins. Seeds are shiny, light to dark brown in color, irregular in shape and have a scar on one side. Each plant is capable of producing a large number of seeds. In addition to being called "Broad-Leaved Plantain," the weed is also known as Rugel's plantain, Major plantain, dooryard plantain, English plantain and common plantain.

Characteristics of Plantain

As noted earlier, plantain is a perennial, reproducing only from seeds. The seeds

are contained in a nearly cylindrical seedpod which is about 3/16" long, splitting across the lower half and containing numerous seeds. This arrangement permits the dropping of seeds to the ground, where they germinate and start a new generation of plantain. The plant flowers June to September and seeds July to October.

Damage Done by Plantain

When it appears in a lawn, the plant tends to crowd out grass by spreading its leaves on the ground. It is difficult to keep under control, particularly since ordinary mowing fails to kill it. Some sources recommend digging the plants with some type of knife-like instrument if the infestation is light. However, the application of 2,4-D and other selective herbicides has been effective in controlling the plantain.

GONE WITH THE SMOKE . . .

Connecticut Valley Tobacco Market Cut Drastically as Cigar-Makers' Needs Change

By GUY LIVINGSTON
Crophile Special Correspondent

BOSTON—The role of tobacco in the Connecticut River Valley has been described as "uncertain" at the State House here by agricultural experts because of several recent changes. For many years, tobacco has reigned as the leading agricultural income producer in the Connecticut River Valley, but new developments threaten the future, and Valley farmers are planning meetings to adjust to meet the future, it was revealed.

It was pointed out that tobacco was an excellent income producing crop during the 40's including World War II and the years immediately following. A postwar peak of 6,200 acres of binder tobacco was grown in the Valley in 1950, the highest since the 20's. Since World War II, total cigar consumption has held its own at 6 billion annually.

However, relative to population increase, cigar consumption has not held pace with cigarettes. By the late 40's stocks of binder tobacco on hand were high in relation to annual use. A program of adjustment with government aid was enacted. Except for 1952, growers voted to retain acreage allotments and marketing quotas to assure continued price support.

The initial allotments were determined by historical base and any decline from a peak year affected the allotment of a particular farm. In 1956 allotments were cut 12½% and in 1957 they were cut another 10%. After World War II, the Connecticut-Massachusetts Cooperative was established for the orderly marketing of tobacco. Under government price supports a farmer, unable to receive a satisfactory price for his crop privately, has the alternative of marketing it through the Cooperative. Here, the tobacco is carefully graded, stored and sold to the trade. The grower is provided a cash return for his crop based on the parity support for the grade of his crop.

In 1955 a high percentage of the Valley crop went to the Cooperative for lack of buyers willing to approximate the governmental support price.

The department of agricultural economics at the University of Massachusetts, reporting on the situation, said: "One force that has led buyers to refrain from seeking crops of tobacco at support prices was the innovation and use of synthesized leaf binder. Ground-up tobacco leaves held together by an adhesive and made into sheets are found to be satisfactory for the manufacture of cigars.

"The innovation makes it possible to produce a cigar binder by using only approximately two-thirds as much natural leaf. It also enables manufacturers to use poorer grades of tobacco, particularly with respect to leaf perforations and damage. Therefore, despite savings in costs of manufacturing cigars, buyers have little interest in buying the best grades of tobacco from the Cooperative.

"The introduction of manufactured binder and mounting unsold stocks of the Cooperative led Valley tobacco organizations and the Farm Bureau to seek the inclusion of tobacco in the Soil Bank program of the federal government. Enacted in June, 1956, it came too late for full participation in the Valley. Of 1,019 farm allotments, 693 farmers placed 2,172 acres in the Acreage Reserve Program. In 1957, of 983 allotments, 871 placed 2,883 acres in the Acreage Reserve of the Soil Bank. Tobacco was produced on

only 277 farms in the amount of 1,291 acres in 1957. This is about one-fifth of the 1950 acreage.

"Another force leading to curtailment in the growing of tobacco has been the excellent off-farm employment opportunities in the Connecticut Valley. During the 1953-55 period approximately 20% of the farms with tobacco allotments were not using them.

"A challenge faces the tobacco growers of the Connecticut Valley.

"For the next two years they are eligible to receive price supports on the allotted acreage they may grow. While their acreage has been cut back by over 25% during the past years the competing areas have maintained production. The farmers in these competing areas apparently have been willing to maintain their acreage with tobacco selling at prices from 25 to 30¢ a pound. A paradox is that Valley growers are not encouraged in making innovations to reduce their costs if any damage is to occur to the leaves. This lack of encouragement arises from the fact that the support price, their best market, is based on the grading of high quality leaves.

"In addition, the continual cutback on allotments has resulted in farms operating under capacity with respect to the tobacco enterprise overhead. Can a farm which was an efficient producer of 20 acres of tobacco be expected to produce 10 acres economically? Expansion of acreage and entry into tobacco production in the Valley are under strict limitation. Only Valley farmers can answer the question as to the future of binder tobacco production in this area."

South Carolina Sales

CLEMSON, S.C.—South Carolina fertilizer shipments during December totaled 20,270 tons, compared with 23,216 tons in December, 1956, according to the State Department of Fertilizer Inspection and Analysis. Shipments during the last six months of 1957 amounted to 116,874 tons, a 4.9% drop from 122,929 tons in a corresponding period a year earlier.



HONORARY MEMBER—B. B. Mainord, Missouri Farm Bureau Service Co. representative from New Florence, Mo., at the right, presents Dr. W. A. Albrecht, chairman of the University of Missouri's soils department, with an honorary 1958 membership in the Soil Fertility and Plant Nutrition Council of Missouri. Looking on at left is Dick Balser, Spencer Chemical Co., Kansas City. Mr. Mainord is president of the Missouri Council and Mr. Balser is secretary and treasurer. A story of the annual meeting of the council appeared on page 1 of the Jan. 6 issue of Croplife.

SOLUBLE FERTILIZER

(Continued from page 6)

of the 24 ammoniated superphosphate type fertilizers was a N-P fertilizer having 79% of the phosphorus in water soluble form. The lowest phosphorus solubility of the 21 ammonium phosphate type goods was a N-P-K grade having also 79% of its phosphorus in water soluble form.

The data from these 45 chemical analyses showed that a preponderance of the ammoniated superphosphate fertilizers contained 50-70% of the phosphorus soluble in water while a preponderance of the ammonium phosphates contained 90-100% of the phosphorus soluble in water.

These chemical determinations of 45 fertilizers were superimposed on a graph showing results obtained using bushels of corn as a measure of the value of the different fertilizers. (Figure 2.) According to agronomic experimental data where equal amounts of available phosphorus are added to a phosphorus deficient soil, the 90% water soluble fertilizer may be expected to produce two bushels of corn more per acre than a material containing 50% of its phosphorus in water soluble form.

Illinois Custom Spray Operators to Meet

URBANA, ILL.—The effect of giant foxtail on corn and soybean yields will be discussed at the 10th annual Illinois Custom Spray Operators' School. That's the latest report from H. B. Petty, chairman of the school and extension entomologist at the University of Illinois.

The school, scheduled for Jan. 23-24, begins at 10 a.m. Jan. 23 in the Illini Union on the University campus.

The report on giant foxtail will be given on Jan. 23 by J. W. Pendleton, university agronomist. That night's session will concern the functioning of new insecticides and herbicides. Glen Lehker, Purdue University entomologist, will participate in the discussion. F. W. Slife, weed control specialist at Illinois, will report on simazin, a pre-emergence herbicide for corn. Mr. Slife will also present other topics, including the formulations and drift hazards of 2,4-D. Mosquito control, discussed by P. Bruce Brockway from the mosquito abatement district, Toledo, Ohio, will highlight the Jan. 24 morning program.

AVIATION CONFERENCE

COLUMBUS, OHIO—The seventh annual Ohio-Indiana Agricultural Aviation Conference will be held Feb. 26-27 at Ohio State University here.



C. W. Loomis

C. W. Loomis, Retired Bemis Officer, Dies

ST. LOUIS—C. W. Loomis, retired director and vice president of the Bemis Bro. Bag Co., died following nearly two years of ill health. He was director of personnel at Bemis' St. Louis general offices at the time of his retirement in January, 1957.

A graduate of the Massachusetts Institute of Technology, Mr. Loomis joined the Bemis organization at Boston in 1916, transferring to the St. Louis engineering department in 1920. He moved to the company's Indianapolis sales division in 1922 as a salesman, and in 1924 was put in charge of the Detroit sales office.

Mr. Loomis was made manager of the Bemis Memphis plant and sales division in 1931, serving in that capacity until 1947, when he was transferred to St. Louis as director of personnel.

Early Agronomist Is Honored in Minnesota

ST. PAUL, MINN.—Coates P. Bull, a former agricultural worker for the Minnesota Department of Agriculture and one-time University of Minnesota agronomist, was recognized recently for his part in founding the American Society of Agronomy.

The recognition came during a noon luncheon of the Minnesota section of the society at the St. Paul Athletic club. Gov. Orville Freeman had earlier proclaimed "Agronomy Day" in recognition of the society's 50th anniversary.

Mr. Bull received a certificate for being one of the charter members of the society, which was formed Dec. 31, 1907. He was also first vice president of the organization when it was formed.

A University of Minnesota staff member from 1902-1919, Mr. Bull later was an inspection supervisor, first in weeds and seed, then in dairy and foods, for the Minnesota Department of Agriculture.

In 1921, he helped form the International Crop Improvement Association, another large-scale organization of farm crop authorities. He retired in 1943.

South Dakota Meeting

BROOKINGS, S.D.—The 11th annual South Dakota two-day weed and pest control conference has been scheduled in the city auditorium at Miller, S.D. on March 18 and 19. Topics slated for discussion during the conference include pesticide residue problems; the toxic effect of herbicides on livestock; new chemicals and their uses, including TBA, Simazin, 2,4-D-B, CDAA, EPTC and tetrachlorobenzene; systemic insecticide development; parasite control in livestock; shelterbelt weed control; results of new grub control demonstrations, and ACP aid in weed control.

WEED CONFERENCE

(Continued from page 1)

herbicidal action," he said. "The need is acute for development of fundamental knowledge of the physiological processes involved in the response of weeds and crops to herbicides as influenced by environmental factors. A more exact knowledge of the mechanisms involved in conditioning leaf, stem and root surfaces for efficient penetration of dissolved chemicals is needed to provide a sound basis for the development of practical and reliable procedures for using herbicides to control weeds."

Other problems cited were the lack of properly trained personnel and the development of adequate cost data that can be used in planning sound and efficient programs of research and in educating the public at large on the importance of weed control.

The general session also heard A. E. Aberg, Royal Agricultural College, Institute of Plant Husbandry, Uppsala, Sweden, speak on problems, progress and organization of weed control in continental Europe. He told the group that "sometimes there is a feeling in Europe that, since World War II, chemicals and their properties have received too much emphasis in weed control."

He added, "Chemicals are no doubt important. But they can never get the place they are entitled to unless our research workers in weed control pay attention to biology and ecology of those plants we treat—cultivated plants as well as weeds."

Dr. H. L. Haller, assistant to the administrator, production research, ARS, USDA, spoke at the general session on the impact of Public Law 518 on herbicide research and recommendations.

He said one of the most important problems still confronting herbicide workers is the need for residue data for those chemicals which were approved for use on certain crops prior to the enactment of PL 518 but for which no tolerances or exemptions have as yet been established. Cited as examples were 2,4-D where it is used on grass pasture and rangeland intended to be grazed by milk and meat producing animals and MCPA under similar conditions.

In his concluding remarks, Dr. Haller said that much remains to be learned for the most effective use of herbicides. When used on food plants, he said, a knowledge of the factors influencing their absorption, translocation and distribution and breakdown is important.

Research findings indicate that most of the modern organic weed killers break down fairly quickly. However, Dr. Haller said, to comply fully with PL 518, information must be obtained on the metabolites as well as their toxicity and the extent to which they may be present on food plants.

After the general session, the meeting divided into nine sections—agronomic crops; horticultural crops; pastures, rangeland, forests, right-of-ways and other areas; ecological, physiological, and edaphic aspects; turf; public health aspects; regulatory aspects; teaching and extension aspects, and aquatic weeds.

Among the highlights were:

Competition from weeds is one of the major limiting factors in producing soybeans in the Mid-South area. Relatively low cash returns from this crop, compared with cotton for example, sharply curtail the amount of money a farmer will spend for controlling weeds. Research management practices in the past, aimed at increasing both yields and profits, have dealt with such methods as decreasing the spacing between rows from the conventional 36- to 40-inch rows now used down to 10- and 20-inch rows. Increased yields have been realized by such methods, although weed competition in a wet season often offsets any advantage to be

gained.—R. E. Frans, University of Arkansas, Fayetteville.

Use of urea herbicides applied to the soil at cotton layby time to control annual weeds is increasing in the Southwest. When such herbicides have been used, it has been possible to reduce the number of cultivations necessary under normal cultural practices. Monuron has advanced layby as much as one month. Tests indicate that diuron may completely eliminate the need for cultivation to control annual weeds.—K. C. Hamilton and G. N. McRae, University of Arizona, Tucson.

Work at North Carolina State College has indicated that a mixture of solution nitrogen, a wetting agent and 2,4-D may serve as both a weed killer and as a nitrogen fertilizer for corn. Season-long weed control has been repeatedly achieved even under extremely weedy conditions. The spray mixture is applied to the entire soil surface and to the base of the corn plant when it is 18 to 36 inches tall. The base of the corn stalk is tolerant to the spray, and the leaves are easily killed. Early weed control provided by cultivation or pre-emergence sprays is imperative to the success of the program.—Glenn C. Klingman, North Carolina State College.

Herbicides are being used to release existing coniferous trees from overtopping brush and to prepare brushy sites for seeding or planting. Chemicals may also play an important part in controlling brush that competes with widely spaced, fast-growing trees in managed stands. The most commonly used herbicides are 2,4-D and 2,4,5-T.—Walter D. Dahms, Northwest Forest and Range Experiment Station.

After ten years, the frequency with which damage occurs from misuse of 2,4-D in southern states indicates that the educational approach to the problem has had limited success. There is a trend toward fewer damage claims each year. It is believed significant that the fewest complaints occur when there is the most rigid control. It is suggested that manufacturers and researchers have a moral responsibility to spend as much time as necessary to devise means of eliminating the hazards of the use of agricultural chemicals.—E. A. Epps, Jr., Louisiana State University, Baton Rouge.

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Dr. A. S. Crafts Named President Of Weed Society

MEMPHIS—Dr. A. S. Crafts of the University of California, Davis, will serve as president of the Weed Society of America during the next two years, according to an announcement made at the second annual meeting here Jan. 12-15.

Other officers named to serve with Dr. Crafts are Dr. K. P. Buchholtz, University of Wisconsin, vice president; Dr. W. C. Shaw, Crops Research Division, Agricultural Research Service, U.S. Department of Agriculture, secretary; and Dr. W. C. Jacob, University of Illinois, treasurer and business manager of Weeds, the society's official publication. Election was by mail vote.

Dr. Crafts, who is noted for his contributions to the basic understanding of the manner in which chemical weed killers work, currently is in England continuing his research and exchanging ideas with scientists. Among other research, Dr. Crafts has been using radio-active 2,4-D to trace the movement of chemical weed killers through plants to which they have been applied.

The next meeting of the society will be held in Denver, Colo., in February, 1960.

WEED SOCIETY A NEW GROUP

MEMPHIS, TENN.—The Weed Society of America, which held its meeting last week at Memphis, is a relatively new scientific group. It held its charter meeting only two years ago, and now has a membership of more than 1,000, of whom more than 600 are claimed to be active participants. Membership comprises research scientists, including agronomists, horticulturists, weed control specialists, plant physiologists, ecologists, soil scientists, chemists, foresters, and conservationists.

Active sustaining and subscription members include many employees of the U.S. Department of Agriculture, agricultural experiment stations, federal and state regulatory organizations, public health departments, public and private utilities and chemical and equipment industries. WSA conventions are held every other year, in conjunction with meetings of various regional conferences.

Herbicide Mode of Action Explained by Researchers

MEMPHIS, TENN.—How herbicides act to kill weeds was described by U.S. Department of Agriculture researchers at the Weed Society meeting here Jan. 13. Some chemicals act by destroying or interfering with the ability of the plant to synthesize foods they need for life and growth.

Certain chemicals interfere with the first step in photosynthesis, according to a report by D. E. Moreland, W. A. Gentner, J. L. Hilton and K. L. Hill. The research work was conducted by research scientists of USDA in cooperation with the California and North Carolina agricultural research stations.

The report covered studies with N-phenylcarbamate, substituted urea, and triazine derivatives. All were found inhibitory to that portion of photosynthesis (known as the Hill reaction) concerned with absorption of light by plants and with ultimate synthesis of carbohydrates (sugars and starches) within plants. In one series of experiments, the researchers found that death of barley plants caused by the herbicide Simazin, a triazine derivative, can be prevented by supplying carbohydrates to the barley plants through their leaves.

This discovery substantiates the Hill-reaction studies in showing the effects of herbicides on plant chloroplasts (seat of photosynthesis and starch formation). It represents a long step toward better understanding of reasons for the lethal effect of these herbicides on weeds, the researchers said.

In other studies, conducted at Beltsville, USDA scientists found that dalapon, a grass herbicide, kills various organisms by preventing formation of pantothenic acid, one of the B-vitamins essential to growth of living organisms. This finding was reported to WSA members by Dr. Hilton, L. L. Jansen, and Dr. Gentner.

Organisms used in the experimental work included yeast and germinating seeds. In these experiments, use of pantothenic acid protected the organisms against the destructive action of the herbicide.

Studies at Davis, Cal., reported to the WSA meeting by USDA researcher T. J. Sheets, involved investigations of the penetration, movement, and decomposition of certain herbicides in soils. Fundamental information gained through these experiments is essential for developing recommendations for soil-applied pre-emergence use of these weed killers in crop production.

The California research showed that, in relation to their effectiveness as weed killers, the behavior of herbicides in soils is influenced by factors such as the soil's acid-alkaline balance, clay content, organic matter, moisture content, microorganisms, nutrient level, physical structure, and cropping practices.

SCIENTIST RETIRES

WOOSTER, OHIO—Ohio horticulturist, whose research changed potato culture in the United States, has retired after 35 years of experimenting with vegetable crops. He is Dr. John Bushnell, a Minnesotan who came to the Ohio Agricultural Experiment station in 1923.

Study Shows Weeds As Principal Cause Of Crop Output Loss

WINNIPEG—A study to determine losses caused by weeds in Manitoba conducted at the University of Manitoba during 1956 and 1957 substantiated the belief that weeds are still one of the most important limiting factors in crop production.

Losses due to annual weeds were calculated to average over 25 million bushels of wheat, barley, oats and flax each year and exceed those caused by insects, plant diseases and hail combined. A further study indicated that controlling weeds not only helped increase yields but also increased protein content of the grain.

Experiments designed to find the best herbicides for weed control in sugar beets, soybeans and corn were conducted by federal experimental farms at Brandon, Portage la Prairie and Morden, the university and by the Manitoba Sugar Co.

Simazin, a comparatively new addition to the herbicide family, appeared promising for weed control in corn, and at the recent agronomists' conference here it was recommended that this herbicide be given further wide scale testing this year.

The same conference learned that hard-to-kill weeds like wild buckwheat, ladies' thumb and redroot pigweed in growing crops can be reasonably well controlled by double spraying at 8-day intervals using 4 to 6 oz. of 2,4-D each time. By using several light rates the crop was not seriously affected. A further test showed that three light doses of 2,4-D gave almost a complete kill of these weeds with surprisingly little damage to the wheat crop.

H. A. Craig, director of the weeds branch, Manitoba Department of Agriculture, pointed out that less than one-half of Manitoba grain fields were sprayed for weed control in 1957. In all a total of 3,011,000 acres were sprayed with 2,4-D or MCPA, representing a 1.2% increase over 1956. An 87% increase was reported in acreage treated with TCA for green foxtail and couch grass control.

Oregon County Plans Mouse Control Program

LAKEVIEW, ORE.—In order to crystallize a plan of action toward Lake County mouse control, Oris Rudd, county agent, held a meeting of all county farmers and ranchers here. Damage from mice, heaviest so far in the Warner Valley section, was reported in most sections of the county, and reports from the U.S. Department of Agriculture Agricultural Stabilization and Conservation Board office state that the mice have been found in farm-stored grain under CCC loan. Grain under this program must be clean or will be disqualified.

The Lake County court has agreed to furnish two men to mix bait for a baiting program and to provide initial finances to get the program started. Such money will be returned to court from the sale of mixed bait.

The bait will be released to farmers at cost, with no charge for the mixing. Mr. Rudd states that the plan is to organize and get material on hand so that action can be taken when conditions permit.

Big Potential in Colorado Fertilizer Consumption Cited

FORT COLLINS, COLO. — Fertilizer use continues to set new records in Colorado, a Colorado State University agronomist reported at the state's sixth annual fertilizer conference. About 100 persons from the fertilizer industry attended the meeting on the university's campus at Fort Collins.

Dr. Donal D. Johnson said fertilizer sales to Colorado farmers are climbing steadily. They set a new record of 53,000 tons in 1956, and rose to an estimated total of 60,000 tons in 1957.

The trend of fertilizer use in Colorado is not following the national pattern, Dr. Johnson said. Nationally, fertilizer sales hit a peak of 23 million tons in 1953, then slumped to a total of 21 million tons in 1956.

However, Dr. Johnson added, fertilizer use in Colorado is still below the potential. "Heavier fertilizer application is one of the few ways left for the farmer to cut his cost per unit of production," he said. "Instead of applying only 60,000 tons a year, Colorado farmers could easily step up the total to 200,000 tons. Increased fertilizer applications would greatly increase our efficiency of production."

An encouraging factor, Dr. Johnson reported, is the trend toward more high-analysis fertilizers. In this category, Colorado is well out in front of the nation. The average nutrient content of fertilizer sold in Colorado during 1956 rose to 41%—or 41 lb. of plant food for each 100 pounds of fertilizer material. The national average is 28%.

At the same time, there is a strong downward trend in use of complete, mixed fertilizers. Farmers are tending to use more single-nutrient carriers such as ammonium nitrate and triple superphosphate.

Trend towards the use of high-analysis, single-nutrient fertilizers is a logical step, Dr. Johnson believes, "because the higher the analysis, the lower the unit cost of the plant nutrients in the fertilizer material."

Anhydrous ammonia accounts for about 30% of total nitrogen sales in Colorado, Dr. Johnson said.

Another shift in the fertilizer picture, pointed out by Dr. Johnson, is the increasing sales to non-farm sources. About 10% of the nation's fertilizer production now goes to non-farm buyers for use in greenhouses and on lawns and gardens.

Trace elements were discussed by Dr. Sterling Olsen, Colorado State University soil scientist. "In general," Dr. Olsen said, "we have had very

little trouble with trace element deficiencies in Colorado. Repeated tests throughout the state have shown that the addition of trace elements is of little, if any, help in boosting crop yields."

Dr. Olsen pointed to one general exception—iron. "Iron chlorosis," a yellowing condition caused by iron deficiency, often shows up in Colorado crops. The condition often is temporary, Dr. Olsen said.

SYMPOSIUM

(Continued from page 1)

processes of fertilizer manufacture with nitrogen solutions. It discusses such subjects as granulation vs. conventional mixing, formulation, calculations, cost analysis, handling of nitrogen solutions, safety and the Sohio line of products and their use. It will be off the press soon.

Another manual, introduced at the symposium is pointed primarily to the use of Sohio's nitrogen solutions in the manufacture of liquid fertilizers.

In the free exchange of ideas at the symposium, the session was opened by a statement by E. F. Morrill, president of the Sohio Chemical Co., followed by a talk by H. J. Coleman, Sohio's sales manager, on the background of the company's activity in the fertilizer industry. C. M. Phinney, formerly Sohio's technical service representative and now a liquid fertilizer manufacturer in his own right, discussed problems involved in liquid fertilizer manufacturing. Sylvester Grant, currently Sohio's technical service representative and formerly with the Sales Service and Development Laboratory, explained the type and scope of work carried out in Sohio's laboratories.

H. H. Tucker, agricultural service director for the firm, in the principal presentation covered, in a slide-illustrated talk, the results of Sohio's intensive laboratory work in the area of determining the effect of varying combinations of urea and ammonium nitrate in the solubility of the end product.

Following a luncheon, visitors were taken on a tour of the petrochemical plant and manufacturing units where the Sohio line of nitrogen chemicals and other petrochemical products are made.

It was also announced that Sohio will introduce a new product, "Sohio-gen Solution 17," which will be available to fertilizer manufacturers.



WINNERS CONGRATULATED—Winner of the \$150 entomology scholarship given by the Insect Control Industries, Terry Ely, 18, Endeavor, Wis., is congratulated by Dean V. E. Kivlin, associate dean of agriculture at the University of Wisconsin. Dean Kivlin presented the award to Terry during the 12th annual Wisconsin Insect Control Conference with Industry in Madison, Jan. 8-9. Adding their congratulations are Marc Mercer, chairman of the Insect Control Industries Committee (left) and Kenneth Frost, 4-H club agent in Terry's home county, Marquette. Another \$150 scholarship was given to Eric V. Nelson, 18, West DePere, Wis., who was unable to attend the event. Both youths will attend the University of Wisconsin this year where they will major in agriculture. Also during the program Eugene Walgenbach, of Mammoth Springs Canning Co., Oakfield, Wis., was elected to the industry committee in charge of the conference. Also on the committee are Marc Mercer, Milwaukee, 1958 chairman, Spraying Systems Co., Bellwood, Ill.; and Thomas Ritchie, Hercules Powder Co., Wilmington, Del., scheduled to be 1959 chairman. Herbert Harris is the retiring committee member being replaced by Mr. Walgenbach. C. L. Fluke, former chairman of the University of Wisconsin entomology department who will retire this year, was honored for his achievements and contributions.

WISCONSIN MEET

(Continued from page 17)

gain. Paper mills in Wisconsin who have seen the results of this research are undertaking programs.

The time of application of insecticides is as important as the type of chemical in controlling insects attacking livestock, cautioned Dr. R. J. Dicke, entomology professor at the University of Wisconsin. He advised reduction of the horn fly population as soon as possible in order to prevent a build-up of these pests.

In the conference-concluding speech he suggested changes in recommendations for control of the horn fly. New recommendations are to apply a water emulsion spray of synergized pyrethrum or allethrin on milk-producing dairy cattle whenever fly populations exceed 10 per cow.

For young stock and beef animals, a water suspension of methoxychlor at a concentration of .5 per cent can be used. Dr. Dicke also suggested spring and early summer control to reduce population buildup.

North Dakota Farmers Spray Over 7 Million Acres for Weed Control

FARGO—A total of 7,168,360 acres of North Dakota farm land was treated with chemical sprays for weed control in 1957, according to a survey made by all county extension agents in the state and compiled by L. A. Jensen, North Dakota Agricultural College extension agronomist.

Small grains accounted for the largest acreage, with 5,362,900 acres treated and 2,4-D was the most widely used chemical, accounting for 6,153,740 acres.

Flax made up 1,513,300 acres of the total acreage sprayed, corn 102,325 acres, fallow 119,540, pasture 55,875 and all other acreages, including soil bank, roadsides, waste areas, etc., 14,420.

The figures show a sharp increase in chemical spraying as a weed con-

trol practice since 1953, when the last survey was taken. In 1953 a total of 2,711,556 acres were treated with chemical herbicides. Small grains accounted for 2,124,330 acres in 1953, flax 481,095, corn 8,655, fallow 65,805, pasture 27,840 and other uses 3,831 acres.

In the 2,4-D sprayed acreage in 1957, in addition to the small grains, were 678,700 acres of flax, 95,005 acres of corn, 98,940 acres of fallow, 45,675 acres of pasture and the remaining 11,250 among other uses.

MCP was used to treat 139,000 acres of small grain, mainly oats, 626,750 acres of flax, 7,200 acres of corn, 400 acres of fallow, 9,000 acres of pasture and 1,000 acres of other types of vegetation, for a total of 783,350 acres.

TCA was used on flax and fallow, 112,590 acres of flax and 5,250 acres of fallow, totaling 117,840 acres.

A combination of 2,4-D or MCP with TCA was used for 95,260 acres of flax, 40 acres of corn and 1,400 acres of fallow for a total of 96,700 acres. Other herbicides were used on 80 acres of corn, 13,550 acres of fallow, 1,200 acres of pasture and 1,900 other farm acres, totaling 16,730.

North Dakota farmers have invested in 21,440 ground sprayers, according to another survey tabulated by Mr. Jensen. In 1953, when the last survey was made, an estimated 12,657 sprayers were owned by farmers of the state for use in treating their crops with chemical herbicides and with insecticides.

Ground sprayers accounted for 70% of all the acreage treated with chemical weed sprays in North Dakota in 1957. In 1953 it was 88%.

Ground dusters showed a decrease from 1953. Only 185 farmers are reported as owning ground dusters in 1957, while 429 were reported in 1953. They accounted for only 1/4% of the total acreage treated as compared with 2% 4 years ago.

Airplane spraying showed a large increase, with 319 airplanes operating in North Dakota in 1957 and spraying 29.5% of the total acreage as compared with 129 planes in 1953, spraying 10% of the total treated acreage.



COLORADO HUDDLE—Figures which show continued expansion of fertilizer sales in Colorado are reviewed by Erik Hildebrandt, Colorado Plant Food Co.; Dr. Donal Johnson, Colorado State University agronomist; William S. Gibson, Olin Mathieson Chemical Corp.; and R. W. Scanlan, Phillips Petroleum Co. They attended the 6th annual Colorado fertilizer conference where Dr. Johnson reported that use of fertilizer in Colorado continues to set new records.

Croplife

A WEEKLY NEWSPAPER FOR THE FARM CHEMICAL INDUSTRY

The regional circulation of this issue is concentrated in the Northeastern states.

PESTICIDE FOES ACTIVE . . .

Better Public Relations Necessary for 1958 as Agricultural Spray Time Nears

"Domestic Tomcats kill more birds than will the fire ant campaign" was the reply of a United States Department of Agriculture spokesman to an editorial appearing in the august New York Times the other week, in which the newspaper took issue with USDA's plan to eradicate the fire ant in some southern areas. The editorial said that the department was "blithely plunging ahead" on a program that might have terrible effects on fish and wildlife, not to mention possible bad side actions on human beings.

The situation points up the growing inclination of city newspapers to exaggerate completely out of proportion the possible hazards of use of pesticidal compounds for elimination or control of various agricultural pests. First it was the opposition of a relatively small group of very vocal citizens to USDA's effort to wipe out the destructive gypsy moth. Now a great newspaper adds to the furore by condemning current efforts to stop the fire ant before it has a chance to spread into such a broad area that it can never be eradicated.

Actually, the points made by the Times against USDA's action fail to hold their shape under the light of close scrutiny. The Times intimated that USDA's campaign would be disastrous so far as wildlife is concerned, whereas the government agency had planned the entire procedure in co-operation with conservation and zoological officials and representatives of the Department of the Interior fish and wildlife service. The whole program reflects the sober judgment of all of these agencies.

The element that gives the pesticide industry pause lies not so much in the fact that someone is opposing the use of insecticides to stamp out a serious pest, by now the trade is accustomed to such attacks. The significant thing, as thoughtful observers note, is that propaganda of this sort does not stop with readers who pound the sidewalks of New York. It travels on and on to many remote sections of the country where good people get the idea that the USDA is truly engaging in an anti-wildlife program, and that the pesticide industry must be put under strict control lest all forms of outdoor life be hurt.

It is the over-all effect that the industry fears, not merely an occasional blast from a bird-lover group or the inevitable anti-pesticide articles which seem to come with more and more frequency. Added up, these outbursts amount to a bad name for the entire concept of agricultural insect control.

It must be counteracted by the people who know the true picture, and told convincingly to those who take a skeptical attitude toward the use of "chemicals" on farms.

Whose responsibility is it, anyway? If the USDA issues counterclaims they are likely to be discounted, since it is the department itself that is under fire.

If the industry discusses the problem only among its own members, the word fails to get much farther than this group, which, after all, is already sold on the use of pesticides for the control of insects.

Articles in publications with mass readership would be helpful, but they are not always available. And anyway, there seems to be a greater attraction to some editors for "scare" type material, rather than sound copy picturing the safe aspects of pest control.

Possibly the best way open for counteracting the contagious hysteria, which appears to be per-

meating down to the last gardener, is for local formulators, dealers, and salesmen to employ every means possible in reassuring the people in their communities that insecticides, when properly applied, are going to hurt nothing but the bugs.

Letters to the local editor, talks before local clubs, and casual conversation with people of the community all have their impact. It is a needed effort, and one which only the people in the industry could be expected to carry out.

Further ideas and specific suggestions are being prepared for Croplife readers who may wish to participate in a counter-propaganda effort.

VIEWPOINT . . .

Broader Use of Farm Output Would Help Solve Surplus

By Dr. Vincent Sauchelli
National Plant Food Institute

AT a recent meeting in Florida sponsored by citrus and chemurgic groups I was once more impressed with the potential resources of the Southeast, as yet untapped by industry. This area promises rich rewards to enterprising industrialists. Several research leaders associated with local



firms listed the number of substances already being profitably derived from the citrus crops other than the juices and pointed out the large number of other organic derivatives potentially present in this crop alone. Others described the local advantages for developing new fiber crops, such as ramie and kenaf. Farm crops are rich in cellulose, proteins, starch, sugar, oils and other compounds, all of which could become sources of raw materials for chemical manufacturers.

Although farm crops are generally grown for food and feed purposes, it is a fact that half their bulk is inedible. This fact has stimulated many thoughtful persons to advocate that the federal government should sponsor research aimed at showing how the chemical industry could utilize this huge tonnage of raw materials in the interest of conservation and farm prosperity.

It is known, of course, that a beginning along this line was made in 1948 when the Congress authorized establishment of four regional research laboratories. These research centers have developed some 400 important processes of which about 300 are awaiting favorable economic conditions for commercial adoption. But, Congress has at no time provided sufficient annual funds to these laboratories to enable them to carry on as originally hoped for.

Last June, the 84th Congress created a Commission that was to investigate and report on the possibility of utilizing farm crops for industrial use. Its report has been published as Senate Document No. 45.

The fertilizer industry is naturally interested in the success of any development of large acreages of new crops in whatever the region of the country. In the Southeast vast acreages have been withdrawn from cotton growing and await a new paying crop. Kenaf could be one new crop to replace cotton on those abandoned acres. New crops create new markets for commercial fertilizers and constitute the soundest method for expansion of fertilizer usage.



Croplife's Home Office

Croplife



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CROPLIFE is a controlled circulation journal published weekly. Weekly distribution of each issue is made to the fertilizer manufacturers, pesticide formulators and basic chemical manufacturers. In addition, the dealer-distributor-farm adviser segment of the agricultural chemical industry is covered on a regional (crop-area) basis with a mailing schedule which covers consecutively, one each week, four geographic regions (Northeast, South, Midwest and West) of the U.S. with one of four regional dealer issues. To those not eligible for this controlled distribution Croplife subscription rate is \$5 for one year (\$8 a year outside the U.S.). Single copy price, 25¢.

LAWRENCE A. LONG

Editor

DONALD NETH

Managing Editor

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MEETING MEMOS

Feb. 25-26—Seventh Annual South Carolina Pesticide Chemicals School, Clemson House, Clemson College.

March 18-19—South Dakota Weed & Pest Control Conference, City Auditorium, Miller, S.D.

EDITOR'S NOTE: The listings above are appearing in the Meeting Memos for the first time this week.

Jan. 20-29—Virginia Polytechnic Institute Fertilizer Schools; at Culpeper Jan. 20, Tappahannock Jan. 21, Richmond Jan. 22, South Boston Jan. 23, Lexington Jan. 24, Marion Jan. 27 and Suffolk Jan. 29.

Jan. 21-22—Michigan Insecticide & Fungicide Conference, Kellogg Center, Michigan State University, East Lansing, Mich.

Jan. 21-22—North Carolina Pesticide School, College Union Bldg., North Carolina State College, Raleigh.

Jan. 21-22—Illinois Fertilizer Industry Conference, University of Illinois, Urbana, Ill.

Jan. 21-23—California Weed Conference, San Jose, Cal.

Jan. 22—Minnesota Aircraft Sprayers Short Course, University of Minnesota, St. Paul campus.

Jan. 22—Oregon Fertilizer Dealers Day, Oregon State College, Corvallis, Ore.

Jan. 22-23—Northwest Agricultural Chemicals Industry conference, Hotel Benson, Portland, Ore. (In connection with N.W. Vegetable Insect Conference and Western Cooperative Spray Project.)

Jan. 23-24—Tenth Illinois Custom Operators School, University of Illinois, Urbana.

Jan. 23-25—Agricultural Aircraft Assn., Inc., 8th Annual Convention, Bakersfield Hacienda, Bakersfield, Cal., William D. Austin, Chandler Field, Fresno, Cal., Executive Secretary.

Jan. 24-25—New Mexico Grain & Feed Dealers Assn., LaFonda Hotel, Santa Fe, N.M., Parley G. Jensen, P.O. Box 616, Albuquerque, N.M., Assistant Secretary.

Jan. 27-31—Seventh Annual Oregon Chemical Applicators Short Course, Withycombe Hall, Oregon State College, Corvallis, Ore.

Jan. 30-31—Colorado Agricultural Chemicals Assn., Annual Meeting, Cosmopolitan Hotel, Denver.

Feb. 2-4—New York Garden Supply Show, New York Coliseum, New York City.

Feb. 4-5—Kansas Insect & Weed Control Conference, Williams Auditorium, Kansas State College, Manhattan, Kansas.

Feb. 4-6—North Carolina Pest Control Operators' Short Course, College Union, Raleigh, N.C. Clyde F.

Smith, Dept. of Entomology, N.C. State College, secretary.

Feb. 6-7—New Mexico Pesticide Conference, New Mexico A&M College, Las Cruces, Dr. J. Gordon Watts, Chairman.

Feb. 10-11—Southwestern Branch, Entomological Society of America, annual meeting, Shamrock Hilton Hotel, Houston, Texas.

Feb. 12-13—Shell Chemical Corp. Nematology Workshop, Hotel Stardust, Yuma, Ariz.

Feb. 13-14—Agronomists-Industry Joint Meeting, Edgewater Beach Hotel, Chicago, sponsored by the Middle West Soil Improvement Committee, Z. H. Beers, 228 N. LaSalle St., Chicago 1, Ill., Executive Secretary.

Feb. 19-20—Midwestern Chapter, National Shade Tree Conference, 13th Annual Meeting, LaSalle Hotel, Chicago, Noel B. Wysong, 536 N. Harlem Ave., River Forest, Ill., Secretary.

Feb. 20-21—Shell Chemical Corp. Nematology Workshop, Holiday Inn Motel, Toledo, Ohio.

Feb. 20-22—Nitrogen Conference, University of Minnesota, St. Paul. M. W. Mawhinney, Smith-Douglass Co., Albert Lea, Minn., Chairman.

Feb. 26-27—Seventh Annual Ohio-Indiana Agricultural Aviation Conference, Ohio State University, Columbus, Ohio.

March 4-5—Western Cotton Production Conference, Hotel Cortez, El Paso, Texas, Conference Sponsored by the National Cotton Council and the Five State Cotton Growers Assn.

March 13-14—Oregon Feed & Seed Dealers Assn., Annual Convention, Multnomah Hotel, Portland, Ore.

April 13-15—Sixth Annual California Fertilizer Conference, California State Polytechnic College, San Luis Obispo, Sidney H. Bierly, 475 Huntington Drive, San Marino 9, Cal., General Manager.

April 17-19—California Hay, Grain & Feed Dealers Assn., Annual Convention, Ambassador Hotel, Los Angeles.

April 22—Western Agricultural Chemicals Assn., Spring Meeting, Hotel Biltmore, Los Angeles; C. O. Barnard, 2466 Kenwood Ave., San Jose 28, Cal., executive secretary.

June 9-11—Association of Southern Feed & Fertilizer Control Officials, Heart of Atlanta Motel, Atlanta, Ga., Bruce Poundstone, University of Kentucky, Lexington, Ky., Secretary-Treasurer.

June 15-18—National Plant Food Institute, Annual Meeting, Greenbrier Hotel, White Sulphur Springs, W. Va.

June 25-27—Pacific Branch, Entomological Society of America, San Diego, Cal.

July 8-10—Pacific Northwest Plant Food Assn., Ninth Annual Regional Fertilizer Conference, Pocatello, Idaho.

July 18-19—Southwest Fertilizer Conference and Grade Hearing, Buccancer Hotel, Galveston, Texas.

Oct. 22-24—Pacific Northwest Plant Food Assn., Annual Meeting, Gearhart, Ore., Leon S. Jackson, P.O. Box 4623, Sellwood-Moreland Station, Portland, Ore., secretary.

Nat C. Robertson New Spencer Research Chief

KANSAS CITY—The appointment of Dr. Nat C. Robertson as general manager of research and development for Spencer Chemical Co. has been announced by Kenneth A. Spencer, president. Dr. Robertson will assume his new responsibilities Feb. 15.

In his new position, Dr. Robertson succeeds Dr. John R. Brown, Jr., who resigned in November. Dr. Robertson will be responsible for managing Spencer's research and development activities including the operation of the new research center recently constructed in suburban Kansas City.

Before joining Spencer, Dr. Robertson was a director and vice president of research for Escambia Chemical Corp. He had been associated with Escambia and its affiliate, National Research Corp., since 1951.

Arkansas Fertilizer Use For November Reported

LITTLE ROCK, ARK.—Fertilizer consumption for November, 1957, totaled 3,064 tons, the State Plant Board has announced. Of this amount, 2,218 tons were used as straight materials, while 846 tons were in mixed fertilizers.

Of nitrogen materials, anhydrous ammonia found greatest use, with 1,515 tons reported. Ammonium nitrate was second, with 466 tons. A mixture of 10-20-10 was most popular among the mixed grades, with 357 tons.

Although consumption in November, 1957, fell short of the amounts used during the same month of 1956, the reported tonnage July through November, 1957, was greater than the same period of previous year.

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Classified advertisements accepted until Tuesday each week for the issue of the following Monday.

Rates: 15¢ per word; minimum charge \$2.25. Situations wanted, 10¢ a word; \$1.50 minimum. Count six words of signature, whether for direct reply or keyed care of this office. If advertisement is keyed, care of this office, 20¢ per insertion additional charged for forwarding replies. Commercial advertising not accepted in classified advertising department. Display advertising accepted for insertion at minimum rate of \$11 per column inch.

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BERRY GROWERS CONSOLIDATE

PORTLAND, ORE.—Northwest Berry Growers Assn. members consolidated their organization with a similar Washington state group during a recent meeting here. Officials say that the two-state unity could prove to be important during the 1958 berry marketing period and should make a stronger Pacific Northwest berry market possible.

CALENDAR FOR 1958

JANUARY S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31	FEBRUARY S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28	MARCH S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31	APRIL S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
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A Complete Sales Medium...

CROPLIFE is the only *complete sales medium* directed to the agricultural chemical industry. It is a *weekly* newspaper appealing to all segments of the industry. One of its editorial functions is to knit more closely together all those industry elements — manufacturers, agents, retailers, the educational echelon and farm advisor groups. It does this by:

- Keeping all segments informed of all industry news.
- Providing feature material designed to help manufacturers and mixers to do a better job, to help dealers sell and to help farm advisors and educational people make sound recommendations.
- Keeping all industry alert to current and proposed government action.
- Providing a channel through which news and advertising can reach all segments of the industry.

This new approach to business journalism for the agricultural chemical industry is being made by a company with 80 years of experience in newsgathering and publishing and one which has built an unchallenged reputation for reliability and service. Advertising of your products and services in Croplife will mean *richer sales fields* for you!

National Coverage Weekly . . .

Croplife's carefully controlled circulation provides national weekly coverage of manufacturers, formulators, mixers and ingredient suppliers.

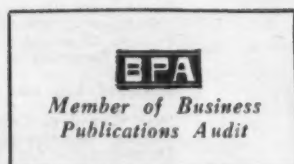
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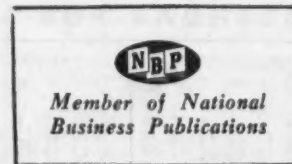


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